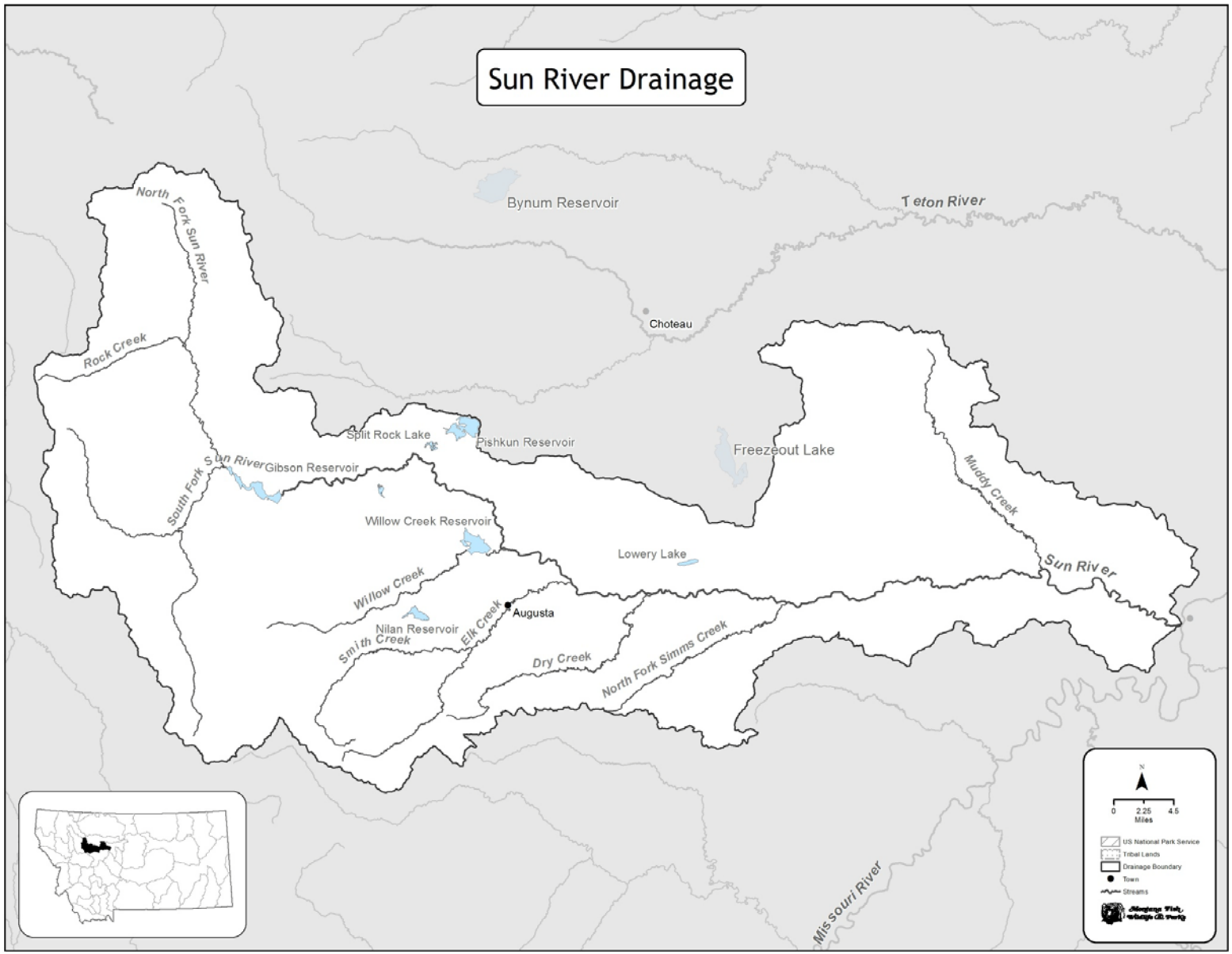

Sun River Drainage
Bynum Reservoir
Teton River
Choteau
North Fork Sun River
Rock Creek
Split Rock Lake
Pishkun Reservoir
Freezeout Lake
South Fork Sun River
Gibson Reservoir
Muddy Creek
Willow Creek Reservoir
Lowery Lake
Sun River
Willow Creek
Augusta
Nilan Reservoir
Smith Creek
Elk Creek
Dry Creek
North Fork Simms Creek
Missouri River
0 2.25 4.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

SUN RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Sun River is the second largest tributary of the Missouri River between Canyon Ferry and Fort Peck dams. This west-central mountain stream drains 1,979 square miles of the east slope of the Rocky Mountains. Its headwaters are within the Bob Marshall Wilderness. The upper Sun River basin is situated in steep limestone and shale mountains within the Lewis and Clark National Forest. Its upper tributaries originate at an elevation of about 8,400 feet and converge at Gibson Reservoir located in the Sun River Gorge. Downstream from Gibson Dam, the river flows for only a few miles to the Diversion Dam impoundment, which is located 17 miles northwest of Augusta. Below this dam, the Sun River exits the mountains onto the prairie zone, first through a series of glacial outwash terraces, then till-covered foothills, and, finally, through sedimentary bench lands. The mainstem of the Sun River downstream of Gibson and Diversion dams flows east 97 miles to its confluence with the Missouri River at Great Falls. The Sun River drainage lies within the bounds of Lewis and Clark, Teton, and Cascade counties. The drainage contains about 1,176 miles of perennial streams, of which about 321 are named. Major tributaries include the North and South forks, Willow, Elk, Mill Coulee and Muddy creeks. There are 17 lakes or reservoirs within the drainage, totaling 5,097 surface acres.

The reach of the Sun River between Diversion Dam and Elk Creek is 32 miles in length, and is entrenched in a very narrow valley about 100 yards wide for the first 12 miles, broadening to about 400 yards wide near the lower end of the reach. Riparian vegetation is sparse in the upper third of this reach because of the narrow floodplain. There are only scattered stands of cottonwoods and willows bordering the river with an undergrowth of rose and Russian olive. As the floodplain widens in the lower portion of this reach, deciduous woodland dominated by cottonwoods comprises the riparian zone. The stream gradient in the reach is fairly steep, averaging about 20 feet/mile. A considerable amount of the channel substrate in the upper 12 miles is composed of reefs of bedrock and large boulders. Areas of cobbles and gravel are limited and are usually associated with side drainages or near islands. Since the construction of Gibson and Diversion dams in 1929, very little bedload has entered this reach, thereby preventing development of a more diverse substrate composition. Channel substrates diversify somewhat further downstream, and are composed of boulders and cobbles.

The reach from the mouth of Elk Creek downstream to the Missouri River at Great Falls is 65 miles in length and occupies a wide valley. The riparian zone is cottonwood dominated woodland with rose and willows being the common shrub species found in the understory. The average stream gradient in this lower reach is 9 feet/mile and varies from 17 feet/mile at the upper end to less than 3 feet/mile near the city of Great Falls. The composition of the channel substrate reflects the gradual decrease in stream gradient as well as the geology. Substrate in the upper third of this reach consists mostly of cobbles and gravel with moderate amounts of silt. Further downstream, channel substrate decreases in size and the deposition of silt increases. Below the confluence of Muddy Creek, and for the remaining 17 miles, there is excessive silt deposition. Approximately 80-90% of the sediment load of the Sun River at its mouth originates from Muddy Creek caused by return flows of the Greenfield Irrigation District of BOR's Sun

River Project. The lower two-thirds of this reach is a major recharge area of return flows and surplus diverted irrigation water. Some tributary streams in the lower portion of the drainage transport these return flows and can function as valuable refuges providing cooler water habitat during critical times of the year. Prairie streams entering the drainage from the south harbor a number of native minnow species including the rare northern redbelly x finescale dace hybrid in Adobe Creek.

Land use in the forested upper basin is dominated by wilderness activities, since nearly two-thirds of the upper Sun River basin drains portions of the vast Bob Marshall and Scapegoat wilderness areas. The Forest Service lands outside the wilderness areas are managed for semi-primitive recreation and other uses including livestock grazing, and minor amounts of timber harvesting.

FISHERIES MANAGEMENT

Since 1987, 15 species of fish have been sampled in the Sun River. Rainbow trout, brown trout, and mountain whitefish are generally the most commonly sampled species. Other species regularly sampled include: Rocky Mountain sculpin, longnose dace, longnose suckers, white suckers, and mountain suckers. Infrequently sampled species include: brook trout, common carp, northern pike, burbot, lake chubs, brassy minnow, brook stickleback, spottail shiner, yellow perch, walleye, black bullhead, and stonecats.

Currently, the North and South forks of the Sun River upstream of Gibson Reservoir support popular hybrid westslope cutthroat trout fisheries. Below Diversion Dam, anglers fish for rainbow and brown trout. This fishery tends to be seasonal in nature.

Early sampling events on the Sun River downstream from Diversion Dam did not allow for estimates of population size, only relative abundance through Catch per Unit Effort (CPUE). Comparisons with more recent data show changes in CPUE that are evident for mountain whitefish, rainbow trout, and brown trout in the Augusta and Simms areas. For example, a dramatic drop in CPUE has been observed for brown trout in the Simms area with numbers declining from 29.2 per electrofishing pass in 1987 to 3.4 per pass in 2005. Although the reasons for the differences are unknown, they likely are due to factors associated with irrigation water management, drought, and differences in season when the sampling occurred.

Three long-term fish population monitoring sections were established on the Sun River in 1997 in the Augusta/ U.S. Highway 287 area, the Simms area, and the reach below the town of Sun River. Due to the overall low numbers of trout, rainbow trout and brown trout data were pooled to calculate population estimates. On average, the Augusta/287 section has the highest trout densities. However, the overall trout densities are extremely low in the Sun River when compared to other trout rivers in north central Montana. The long-term average trout densities are 116, 43, and 90 rainbow trout and brown trout 8 inches and longer per mile in the Augusta/287, Simms, and Sun River sections, respectively. In comparison, the long-term average density of rainbow trout and brown trout combined in the Smith River are 887 and 429, 8 inches and longer per mile in the Eagle Creek and Deep Creek sections, respectively. Low trout densities are caused by year-round chronic de-watering of the Sun River Basin, resulting from large-scale irrigation withdrawals. This dewatering is especially true in the Simms section area, where the river typically ceases to flow during the summer, and is reduced to a series of

disconnected pools. Despite drought conditions, trout densities have been relatively stable—at the low levels—in all three sections through the period of record.

Nilan, Willow Creek, and Pishkun reservoirs all receive hatchery plants of rainbow trout annually to provide additional fishing opportunities. Pishkun Reservoir is also regularly stocked with kokanee salmon fingerlings. Wild recruitment provides a northern pike/yellow perch fishery in Pishkun Reservoir and a rainbow/rainbow x cutthroat trout hybrid fishery in Gibson Reservoir.

The statewide angling pressure survey for the period 1982-2009 reported that the six major waters in the Sun River drainage averaged 29,619 angler days of use annually. The mainstem Sun River averaged 7,539 angler days, the South Fork averaged 1,135 angler days, and the North Fork averaged 1,491 angler days of use for the period of record. The major reservoirs accounted for 19, 454 angler days of use, with Nilan Reservoir averaging 7,832 angler days, 7,083 angler days at Willow Creek Reservoir, and Pishkun Reservoir receiving on average 4,539 angler days.

The long-term goal of cutthroat conservation in the Red Rock is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout. See Part 1: Trout: Westslope and Yellowstone Cutthroat Trout for details.

HABITAT

There are approximately 365 miles of habitat capable of supporting salmonids in the Sun River drainage. Approximately 362 miles of stream support brook trout, and 461 miles support rainbow trout. Diversion Dam was constructed on top of a large barrier waterfall; upstream of this waterfall, the Sun River was historically fishless until fish stocking efforts were initiated in the early 20th century.

Long-term USGS flow records are available for the lower Sun River near Vaughn, which is 14 miles upstream from the mouth. The average annual flow for the 77-year period of record is 672 cfs. Average monthly flows ranged from 254 cfs in January to 2,500 cfs in June. Peak flows at the Vaughn gage averaged 6,754 cfs and ranged from 681-53,500 cfs for the period of Record (1934-2011). Upstream at a USGS gage at Simms, where dewatering is most severe, the mean monthly flows for August and September is 151 and 138 cfs, respectively, for the period of record (1966-2011) compared to 558 and 441 cfs, respectively, at the near Vaughn gage.

Present day flow regimens of the Sun River are largely regulated by Gibson Dam and the associated off-stream storage and irrigation delivery system of the Sun River Project, which includes Pishkun and Willow Creek Reservoirs. This system can accommodate a diversion of nearly 1,700 cfs from the river. Severe dewatering of the river below diversions has commonly occurred in the past. Irrigated agriculture is the largest consumptive use of water in the Sun River basin. Irrigated croplands include hay, alfalfa, and small grains including wheat and malting barley. Irrigation is widespread and intensive throughout the basin. Approximately 120,000 acres of land are irrigated by Sun River waters; 93,220 acres of that are by the BOR Sun River Project. The three major reservoirs in the drainage store about 159,000 acre-feet and supply water to the system throughout the growing season. It has been estimated that it would take about 450,000 acre-feet of controllable flow to meet all of the irrigation needs in the Sun River basin, assuming an overall irrigation efficiency of 40 percent and crops consuming 1.5 acre-feet per acre or a total of about 180,000 acre-feet. This volume of water is not available during many years. For

example, although the long-term average for Sun River basin inflows is approximately 592,000 acre-feet, inflows only averaged about 440,000 acre-feet for the period from 2003-2007. During this time, all but 13 percent of the water in the Sun River was diverted at least once for the purpose of irrigation. Most of the 57,000 acre-feet that wasn't diverted was flow during the fall, winter, and spring runoff that could not be captured and stored or diverted. Of the water diverted for irrigation, approximately 27 percent or about 117,000 acre-feet was consumed, or almost one acre-foot of water consumed per acre of irrigated ground.

FISHING ACCESS

The Sun River is paralleled by a road for its entire course. However, public access to the 97 miles of river is basically limited to seven bridge crossings above Great Falls, three FWP fishing access sites, one BLM developed access site, a carry-in boat ramp near Wadsworth Park in Great Falls, another BLM parcel adjacent to US Highway 287, and state or federally owned parcels in the Alkali Flats area. Above Diversion Dam, the river is surrounded by US Forest Service lands and is an important recreation area with campgrounds.

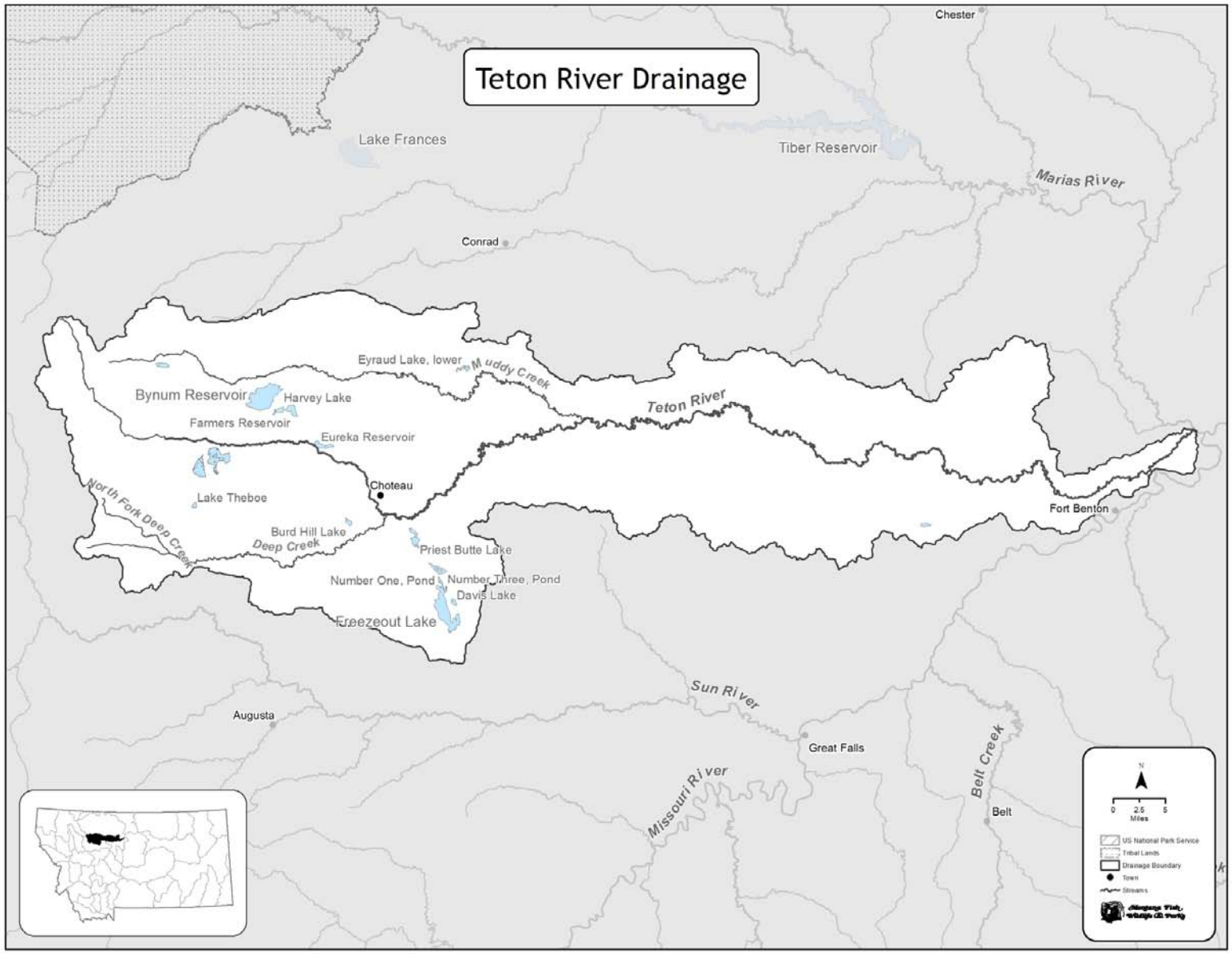
FISHERIES MANAGEMENT DIRECTION FOR THE SUN RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
North Fork Sun River	27.1 miles	Rainbow Trout, Rb x CT hybrids	Wild	General	Monitor populations to maintain historic population levels.
South Fork Sun River	26.4 miles	Rainbow Trout, Rb x CT hybrids	Wild	General	Monitor populations to maintain historic population levels.
Mill Coulee Creek	7.4 miles	Rainbow trout, Brown trout	Wild	General	Maintain populations within historic levels providing for a recreational fishery and consumptive use.
Habitat needs and activities: Improve connection to the Sun River and provide passage for migratory spawning fish.					
Gibson Reservoir	1,289 acres	Arctic grayling Rainbow trout Rb x CT hybrids	Wild Wild	Conservation General	Maintain population in upper reaches of the reservoir. Maintain populations providing for a recreational fishery and consumptive use taking into account the significant water elevation changes in the reservoir.
Sun River – Diversion Dam to mouth of Elk Creek	32 miles	Rainbow trout, Brown trout, Mountain whitefish Burbot	Wild Wild	General General	Maintain a recreational fishery and enhance population levels of all species compared to historic numbers. Enhance population numbers.
Habitat needs and activities: Improve instream flows and irrigation water and conveyance management to improve chronic dewatering. Maintain habitat and instream flows of 100 cfs. Excellent potential to improve the fishery.					
Sun River Slope Canal	34.4 miles	Arctic grayling	Wild	Conservation	Maintain viable population in the canal.
Habitat needs and activities: Maintain overwinter habitat in upper reaches of the canal at drops to preserve population. Salvage fish at lower drops that are lost to the population and would perish if not transferred to other upstream waters.					
Sun River – Mouth of Elk Creek to confluence with Missouri River	65 miles	Rainbow trout, Brown trout, Mountain whitefish Burbot	Wild Wild	General General	Maintain a recreational fishery and enhance population levels of all species compared to historic numbers. Enhance population numbers.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Stonecat	Wild	General	Maintain and enhance existing population levels.
		Northern pike	Wild	General	Maintain minimum population levels.
		Walleye	Wild	General	Manage short reach inhabited in conjunction with Missouri River.
		Native minnow species (N)	Wild	Conservation	Safeguard species of special concern to maintain population levels.
Habitat needs and activities: Improve instream flows and irrigation water conveyance management to improve chronic dewatering and irrigation based erosion. Maintain habitat and instream flows of 130 cfs . Excellent potential to improve the fishery.					
Willow Creek	28 miles	Brook trout	Wild	General	Maintain populations within historic levels providing for a recreational fishery and consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 3 cfs.					
Ford Creek	19.3 miles	Brook trout	Wild	General	Maintain populations within historic levels providing for a recreational fishery and consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 12 cfs.					
Elk Creek	32.5 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels providing for a recreational fishery and consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 16 cfs. Improve water management to reduce chronic dewatering. Work to maintain passage from Sun River for adfluvial spawning migrations.					
Pishkun Reservoir	1,518 acres	Rainbow Trout, Kokanee salmon	Hatchery	Put, Grow and Take	Maintain recreational fishery for consumptive harvest by continued stocking.
		Yellow perch	Wild	General	Maintain recreational fishery for consumptive harvest.
		Northern pike	Wild	General	Manage size and population by recommending manipulation of water levels during spawning.
Habitat needs and activities: Request cooperation of Irrigation District to manage water elevations to control northern pike spawning success.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Willow Creek Reservoir	1,314 acres	Rainbow trout	Hatchery	Put, Grow and Take	Maintain recreational fishery for consumptive harvest by continued stocking.
Nilan Reservoir	521 acres	Rainbow trout Brown trout	Hatchery Wild	Put, Grow and Take General	Maintain recreational fishery for consumptive harvest by continued stocking. Maintain recreational fishery with limited consumptive harvest.
Tunnel Lake	14 acres	Westslope cutthroat trout Arctic grayling	Hatchery Transfer/ Wild	Put, Grow and Take General	Maintain recreational fishery for consumptive harvest by continued stocking. Maintain recreational fishery with limited consumptive harvest.
Wood Lake	20 acres	Westslope cutthroat trout	Hatchery	Put, Grow and Take	Maintain recreational fishery for consumptive harvest by continued stocking.
Wadsworth Reservoir	43 Acres	Walleye, Largemouth Bass, Rainbow trout, Brook trout Yellow perch	Hatchery Transfer	Family Fishing Water Family Fishing Water	Maintain as an urban fishery. Maintain as an urban fishery.
Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (Isolated Single Species Populations)(2 Streams)	5.0 miles	Westslope cutthroat trout (N)	Transfer/ Wild	Conservation	Maintain and protect populations to reduce extinction risk.
Habitat needs and activities: Maintain or improve habitat. Explore opportunities to expand existing reaches for populations. Investigate potential to establish additional pure populations above barriers and potential barrier sites.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Westslope Cutthroat Trout Genetically Altered Streams (7 streams)	24 miles	Westslope cutthroat trout (N), Rb x WCT hybrids	Wild	Conservation	Maintain and protect populations of genetically tested 90-99% WCT.
Habitat needs and activities: Maintain or improve habitat.					


Teton River Drainage
Chester
Lake Frances
Tiber Reservoir
Marias River
Conrad
Eyraud Lake, lower
Muddy Creek
Bynum Reservoir
Harvey Lake
Farmers Reservoir
Eureka Reservoir
Teton River
Choteau
Lake Theboe
North Fork Deep Creek
Burd Hill Lake
Deep Creek
Priest Butte Lake
Number One, Pond
Number Three, Pond
Davis Lake
Freezeout Lake
Fort Benton
Sun River
Augusta
Great Falls
Belt Creek
Missouri River
Belt
N
0 2.5 5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

TETON RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Teton River Basin is located in Teton and Chouteau counties of Northcentral Montana. The headwaters originate along the east front of the Rocky Mountains, flow approximately 175 miles in an easterly direction, and enter the Marias River at Loma. The drainage contains about 734 miles of perennial streams and approximately 68 named perennial streams. There are 14 lakes or reservoirs in the drainage for a total of 7356 surface acres. Yearly precipitation averages 12-14 inches, with higher amounts occurring near and in the mountains. The mainstem Teton River originates with the junction of its North and South forks approximately 22 air miles northwest of Choteau. It flows generally eastward to Choteau along gently rolling hills and flat terrain. Principal tributaries include Deep Creek, McDonald Creek, Spring Creek and Muddy Creek. Stream substrate is characterized by glacial materials with abundant gravel, cobble and boulders. Due to the gravelly conditions, channel movement is quite active with channel braiding occurring in some areas. Stream gradient is about 35 feet/mile. Water clarity is good but becomes turbid with sudden increases in flow. The coldwater reach is approximately 33 miles in length, extending down to the discharge from Priest Butte Lake.

The riparian area consists of willows and cottonwoods throughout most of the reach, with limber pine and aspen near the headwaters. Floods in 1964 and 1975 destroyed most of the stream bank vegetation. Much of this vegetation has recovered in some areas.

Choteau is the largest town within the basin, having a population of about 1,600. Smaller communities include Dutton, Bynum, Pendroy, Agawam, Farmington and Collins. The major land uses are for crops and livestock. Approximately 80,000 acres are irrigated in the basin by many private individuals and four local ditch companies. Off -stream storage is held in Bynum, Eureka and Farmers reservoirs, and Eyraud Lakes.

Approximately 15% of the basin is national forest. Considerable exploration for oil and gas has occurred, with several shallow wells presently producing oil in the northern part of the basin. Although coal deposits are present, no commercial mining has taken place. Oil and gas exploration and potential future development continues to be a possibility. In the 33-mile reach from the headwaters to the discharge from Priest Butte Lake near Choteau, land uses include grazing and hay land with some grain crops along the lower portions. Landownership within this stream reach is approximately 80% private and 20% state. Stream access is controlled by private landowners, but is usually granted upon request. The Teton River is crossed by two highway bridges near Choteau, seven county road bridges and several private bridges and fords.

FISHERIES MANAGEMENT

The Teton River Basin provides a trout fishery for people in the local area. There are approximately 329 miles of stream in the Teton River drainage that support brook trout and 194 miles that support rainbow trout. Small populations of pure westslope cutthroat trout are found in headwater streams, which occupy less than 2% of the historic range in the drainage. While rainbow, brook and brown trout and mountain whitefish occur in the middle to upper reaches of the river and tributaries, sauger, burbot, channel catfish, shovelnose sturgeon, and northern pike

are found in the lower Teton River when water is present. Reservoir fisheries, which include Bynum, Eureka, and Eyraud, are composed of rainbow trout and northern pike/yellow perch or trout/yellow perch.

There are several diversions on the upper Teton River above Choteau that divert small amounts of water, three diversions that can divert about 200 cfs, and one large diversion capable of withdrawing 1,000 cfs during flood conditions. Portions of this stretch are subject to low flows or complete dewatering by irrigation diversions. The portion of the reach above Choteau has mostly small brook trout andfewer numbers of brown trout, rainbow trout and mountain whitefish. The lower portions of the reach below Choteau experience very low, but more stable stable flows due to groundwater recharge entering the stream. The fishery is composed of brown trout, mountain whitefish and rainbow trout. Fish present other than trout include blue, longnose, white, mountain, and shorthead redhorse suckers, longnose dace, Rocky Mountain Rocky Mountain sculpin, lake chub, carp, brook stickleback and goldeye.

HABITAT

USGS flow records at the Teton River below the South Fork gage show mean monthly flows of 214 and 82 cfs for the critical months of August and September for the period of record, respectively. USGS discharge records for the lower end of the near Priest Butte Lake are available from June, 1913 to June, 1919. Maximum discharge was 4,500 cfs on June 22, 1916, and a minimum of 1 cfs occurred between August 9 and August 16, 1916. The low readings are influenced by the many diversions above the recording station. Further downstream at the USGS gage near Dutton, the mean monthly flows drop to of 66 and 59 cfs for the months of August and September, respectively. Near the mouth of the Teton River, the mean monthly flows for the period (1998-2011) of record drop precipitously to 12 and 7.4 cfs for August and September, respectively. In fact, at this lowest gage the mean monthly flows have been 0 cfs (dry riverbed) for 50% and 43% of the months of August and September, respectively, during the period of record.

The dewatering of tributary streams and large reaches of the Teton River for irrigation is the greatest problem facing the maintenance of aquatic and fisheries resources in the Teton River basin. Adjudication of water rights in the basin implementing a final decree that recognizes downstream water right,s and the work of a water commissioner to administer those rights, has the greatest potential to provide aquatic habitat now absent in the Teton drainage.

FISHING ACCESS

Public access is available throughout the public land in the headwaters area. Downstream, throughout the drainage, there are no public access sites on the Teton River; fisheries resources and habitat (i.e., flows) need to be addressed before it would be warranted to seek improved fishing access. Public access to private lands has usually been allowed with permission. The only FWP access sites are those associated with reservoirs at Bynum Reservoir, Eureka Reservoir, and Upper Eyraud Lake.

SPECIAL MANAGEMENT ISSUES

Water rights adjudication in the basin and enforcement of a decree will play a critical role in the future of large reaches of the mainstem and tributaries and whether they remain chronically dewatered or once again become perennial streams. **PHYSICAL DESCRIPTION**

The Teton River Basin is located in Teton and Chouteau counties of Northcentral Montana. The headwaters originate along the east front of the Rocky Mountains, flow approximately 175 miles in an easterly direction, and enter the Marias River at Loma. The drainage contains about 734 miles of perennial streams and approximately 68 named perennial streams. There are 14 lakes or reservoirs in the drainage for a total of 7356 surface acres. Yearly precipitation averages 12-14 inches, with higher amounts occurring near and in the mountains. The mainstem Teton River originates with the junction of its North and South forks approximately 22 air miles northwest of Choteau. It flows generally eastward to Choteau along gently rolling hills and flat terrain. Principal tributaries include Deep Creek, McDonald Creek, Spring Creek and Muddy Creek. Stream substrate is characterized by glacial materials with abundant gravel, cobble and boulders. Due to the gravelly conditions, channel movement is quite active with channel braiding occurring in some areas. Stream gradient is about 35 feet/mile. Water clarity is good but becomes turbid with sudden increases in flow. The coldwater reach is approximately 33 miles in length, extending down to the discharge from Priest Butte Lake.

The riparian area consists of willows and cottonwoods throughout most of the reach, with limber pine and aspen near the headwaters. Floods in 1964 and 1975 destroyed most of the stream bank vegetation. Much of this vegetation has recovered in some areas.

Choteau is the largest town within the basin, having a population of about 1,600. Smaller communities include Dutton, Bynum, Pendroy, Agawam, Farmington and Collins. The major land uses are for crops and livestock. Approximately 80,000 acres are irrigated in the basin by many private individuals and four local ditch companies. Off -stream storage is held in Bynum, Eureka and Farmers reservoirs, and Eyraud Lakes.

Approximately 15% of the basin is national forest. Considerable exploration for oil and gas has occurred, with several shallow wells presently producing oil in the northern part of the basin. Although coal deposits are present, no commercial mining has taken place. Oil and gas exploration and potential future development continues to be a possibility. In the 33-mile reach from the headwaters to the discharge from Priest Butte Lake near Choteau, land uses include grazing and hay land with some grain crops along the lower portions. Landownership within this stream reach is approximately 80% private and 20% state. Stream access is controlled by private landowners, but is usually granted upon request. The Teton River is crossed by two highway bridges near Choteau, seven county road bridges and several private bridges and fords.

FISHERIES MANAGEMENT

The Teton River Basin provides a trout fishery for people in the local area. There are approximately 329 miles of stream in the Teton River drainage that support brook trout and 194 miles that support rainbow trout. Small populations of pure westslope cutthroat trout are found in headwater streams, which occupy less than 2% of the historic range in the drainage. While rainbow, brook and brown trout and mountain whitefish occur in the middle to upper reaches of

the river and tributaries, sauger, burbot, channel catfish, shovelnose sturgeon, and northern pike are found in the lower Teton River when water is present. Reservoir fisheries, which include Bynum, Eureka, and Eyraud, are composed of rainbow trout and northern pike/yellow perch or trout/yellow perch.

There are several diversions on the upper Teton River above Choteau that divert small amounts of water, three diversions that can divert about 200 cfs, and one large diversion capable of withdrawing 1,000 cfs during flood conditions. Portions of this stretch are subject to low flows or complete dewatering by irrigation diversions. The portion of the reach above Choteau has mostly small brook trout andfewer numbers of brown trout, rainbow trout and mountain whitefish. The lower portions of the reach below Choteau experience very low, but more stable stable flows due to groundwater recharge entering the stream. The fishery is composed of brown trout, mountain whitefish and rainbow trout. Fish present other than trout include blue, longnose, white, mountain, and shorthead redhorse suckers, longnose dace, Rocky Mountain Rocky Mountain sculpin, lake chub, carp, brook stickleback and goldeye.

HABITAT

USGS flow records at the Teton River below the South Fork gage show mean monthly flows of 214 and 82 cfs for the critical months of August and September for the period of record, respectively. USGS discharge records for the lower end of the near Priest Butte Lake are available from June, 1913 to June, 1919. Maximum discharge was 4,500 cfs on June 22, 1916, and a minimum of 1 cfs occurred between August 9 and August 16, 1916. The low readings are influenced by the many diversions above the recording station. Further downstream at the USGS gage near Dutton, the mean monthly flows drop to of 66 and 59 cfs for the months of August and September, respectively. Near the mouth of the Teton River, the mean monthly flows for the period (1998-2011) of record drop precipitously to 12 and 7.4 cfs for August and September, respectively. In fact, at this lowest gage the mean monthly flows have been 0 cfs (dry riverbed) for 50% and 43% of the months of August and September, respectively, during the period of record.

The dewatering of tributary streams and large reaches of the Teton River for irrigation is the greatest problem facing the maintenance of aquatic and fisheries resources in the Teton River basin. Adjudication of water rights in the basin implementing a final decree that recognizes downstream water right,s and the work of a water commissioner to administer those rights, has the greatest potential to provide aquatic habitat now absent in the Teton drainage.

FISHING ACCESS

Public access is available throughout the public land in the headwaters area. Downstream, throughout the drainage, there are no public access sites on the Teton River; fisheries resources and habitat (i.e., flows) need to be addressed before it would be warranted to seek improved fishing access. Public access to private lands has usually been allowed with permission. The only FWP access sites are those associated with reservoirs at Bynum Reservoir, Eureka Reservoir, and Upper Eyraud Lake.

SPECIAL MANAGEMENT ISSUES

Water rights adjudication in the basin and enforcement of a decree will play a critical role in the future of large reaches of the mainstem and tributaries and whether they remain chronically dewatered or once again become perennial streams.

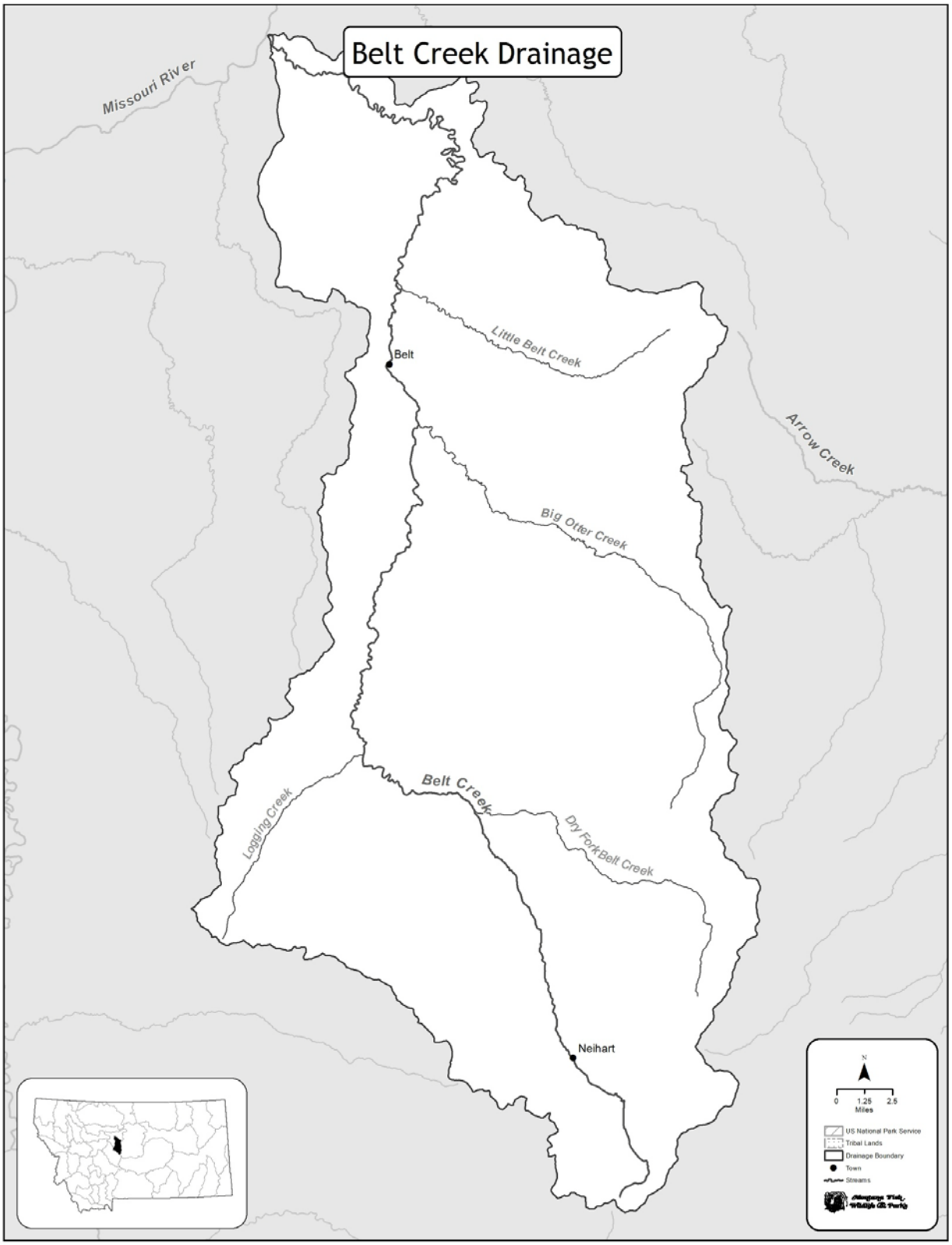
The Teton River Drainage is also home to several conservation populations of westslope cutthroat trout, providing opportunities to conserve this native species in the drainage. The long-term goal of cutthroat conservation in the Teton River River Drainage is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout (see Part 1: Trout: Westslope and Yellowstone Cutthroat Trout for details).

FISHERIES MANAGEMENT DIRECTION FOR THE TETON RIVER DRAINAGE

Water	Miles/Acres	Species	Origin	Management Type	Management Direction
Teton River - Headwaters to the Discharge from Priest Butte Lake	33 miles	Brook trout, Brown trout, Rainbow trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
		Mountain whitefish	Wild	General	Maintain populations within historic levels .
Habitat needs and activities: Maintain habitat and develop instream flows of 35 cfs. Explore strategies to prevent chronic dewatering of the mainstem of the Teton River upstream of Choteau.					
McDonald Creek	8 miles	Brook trout Brown trout Rainbow trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 10 cfs. Explore strategies to prevent chronic dewatering.					
South Fork Deep Creek	8.8 miles	Brook trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
		Westslope cutthroat trout Rainbow trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
		Westslope cutthroat trout	Wild	Conservation	Maintain and protect populations to reduce extinction risk.
Habitat needs and activities: Maintain habitat and instream flows of 6.9 cfs. Evaluate potential for greater access.					
North Fork Deep Creek	4 miles	Brook trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 7.2 cfs. Explore strategies to prevent chronic dewatering.					
Deep Creek	38 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 18 cfs. Explore strategies to prevent chronic dewatering.					

Water	Miles/Acres	Species	Origin	Management Type	Management Direction
Spring Creek	13.1 miles	Brook trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
		Rainbow trout	Hatchery/Wild	General	Maintain populations within historic levels providing for consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 4.5 cfs. Evaluate strategies to prevent chronic dewatering.					
Bynum Reservoir	3,205 acres	Rainbow trout	Hatchery	Put-Grow-Take	Maintain opportunity for catching larger sized fish.
		Kokanee	Hatchery	Put-Grow-Take	Manage as a consumptive fishery.
		Yellow perch	Wild	Family Fishing Water	Provide an opportunity for a fishery not available in other waters in Region 4. Restrict fishing contests incompatible with Family Fishing Water management goals.
		Walleye	Hatchery/Wild	Put-Grow-Take/ General	Evaluate reestablishing a walleye fishery if productivity of existing fisheries decline.
Habitat needs and activities: Maintain a fishery with whatever water levels irrigators maintain in the reservoir.					
Eureka Reservoir	366 acres	Rainbow trout	Hatchery	Put-Grow-Take	Manage as a recreational fishery with consumptive harvest.
Habitat needs and activities: Evaluate benefits to anglers of both fish plants and FAS lease under current water level management in the reservoir.					
Teton River - Discharge from Priest Butte Lake to Mouth	151 miles	Blue sucker	Wild	Conservation	Maintain populations within historic levels.
		Channel catfish	Wild	General	Manage as a consumptive fishery.
		Shovelnose sturgeon	Wild	General	Reestablish a recreational fishery with consumptive harvest.
		Stonecat	Wild	Conservation	Reestablish a native species fishery.
		Sauger	Wild	Conservation	Reestablish a native species fishery with some consumptive harvest.
		Northern pike	Wild	General	Manage as a consumptive fishery.

Water	Miles/Acres	Species	Origin	Management Type	Management Direction
Habitat needs and activities: Develop methods to prevent total dewatering of the Lower Teton River.					
Eyraud Lakes	223 acres	Northern pike, Yellow perch, Largemouth bass	Wild	General	Maintain populations within historic levels for a recreational fishery with consumptive harvest.
Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (3 streams)	5.5 miles	Westslope cutthroat trout	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Habitat needs and activities: Replicate populations to protect them from extinction.					
Westslope Cutthroat Trout Genetically Altered Streams (7 streams)	22.5 miles	Westslope cutthroat trout & hybrids	Wild	Conservation	Maintain or enhance populations. Allow harvest in robust populations.
Habitat needs and activities: Evaluate potential sites for a major barrier on North Fork Teton River.					


Belt Creek Drainage
Missouri River
Belt
Little Belt Creek
Arrow Creek
Big Otter Creek
Belt Creek
Logging Creek
Dry Fork Belt Creek
Neihart
N
0
1.25
2.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

BELT CREEK DRAINAGE

PHYSICAL DESCRIPTION

Belt Creek is a major tributary of the Missouri River. It originates on the northwest side of the Little Belt Mountains and flows in a northerly direction for about 88 miles to its confluence with the Missouri, 14 miles downstream of Great Falls in Cascade County. Belt Creek drains approximately 800 square miles of the Little Belt and Highwood mountains. The basin contains approximately 186 named perennial streams, comprising a total length of about 442 miles of perennial stream habitat. Major tributaries to Belt Creek include Jefferson, Dry Fork, Tillinghast, Pilgrim, Logging, Big Otter, Little Belt and Big Willow creeks.

The upper basin of Belt Creek is situated in the mountainous area of the Lewis and Clark National Forest with its headwaters at an elevation of about 8,000 feet. The landscape of the headwaters is comprised of plateau-like mountains with V-shaped valleys carved through the sedimentary Belt formation of the parent rock. The basin supports subalpine and montane forests consisting mostly of lodgepole pine, Douglas fir, ponderosa pine, and subalpine fir. Within these forest zones, the upper 33 miles of Belt Creek flows through a steep, narrow valley before entering the Sluice Boxes, a limestone gorge about 14 miles in length. The riparian vegetation of the floodplain is variable with respect to elevation, consisting of an overstory of spruce and lodgepole pine in the cool, higher areas and lodgepole pine, Douglas fir, ponderosa pine and cottonwood in the lower temperate zone. Willows, water birch, rose, and red osier dogwood are shrub species which dominate the undergrowth of the riparian. There are very few meadow areas along Belt Creek.

The gradient for this size of stream is unusually steep, averaging about 90 feet/mile near its headwaters at Neihart, to 40 feet/mile at the lower end near Monarch. Channel substrates reflect the cascading nature of Belt Creek with boulders, large cobbles, and several outcroppings of bedrock typifying the stream bottom.

Belt Creek at the lower elevations flows through prairie foothills and benchlands joining the Missouri River at an elevation of 2,800 feet. This lower section begins at the confluence with Big Otter Creek and flows for 39 miles through gently dipping sandstone and shale formations while remaining entrenched within a narrow valley. The upper 13 miles of this reach typically are intermittent during dry periods, probably losing water to cavernous limestone. Downstream of this point, the stream typically becomes effluent again and remains perennial throughout its remaining course. The riparian vegetation consists of a diverse woodland environment dominated by a cottonwood overstory with an undergrowth of willows, chokecherry, rose and snowberry. Although the stream gradient lessens from that of upper Belt Creek, the average gradient of 28 feet/mile is unusually steep for a large prairie stream. Channel substrate is comprised primarily of cobbles, although scattered boulders are still present throughout its length. Cobbles and gravel in the lower end show increased silt deposits due to heavy sediment loads entering from lowland tributaries.

Land use in the Belt Creek drainage includes most types found east of the Divide. Timber harvest has been extensive in the past; however, harvest has been substantially reduced. Mountain pine beetle infestations and spruce budworm has had significant impacts on the forest health in recent years. Nearly all of the land within the lower basin is managed for cattle ranching or farming. A substantial amount of livestock grazing occurs in this area. Only minor grazing occurs in the forested upper basin. Hay and some crop land exist along the stream, but little of it is irrigated. There has been extensive silver, lead, zinc and gold mining in the Little Belt Mountains in both the Carpenter-Snow Creek and Barker-Hughesville Mining districts. Along with the mining of various ore deposits, serious heavy metals pollution has occurred from several abandoned mining tailings. The water quality of streams in the Belt Creek drainage has been impaired as a result of runoff and groundwater. Both mining district sites are Federal Superfund sites and are in the early stages of remediation work.

A USGS stream flow gage on Belt Creek near Monarch (river mile 52.0) recorded an average annual flow of 192 cfs for the 31-year period of record from 1951-82. A relationship was also developed to predict flows on Belt Creek at the Riceville Bridge at the lower end of Sluice Boxes State Park based on flows at the USGS Smith River below Eagle Creek Gage.

FISHERIES MANAGEMENT

From the headwaters to the mouth of Big Otter Creek, a reach of approximately 51 miles, rainbow trout are the predominant sport fish found throughout the lower elevation, higher order stream reaches followed by mountain whitefish and brown trout. Westslope cutthroat (WCT) and brook trout are uncommon in the lower mainstem, but good populations are present in some tributary streams and the headwaters area. Brook trout tend to dominate the smaller, higher elevation streams. There are approximately 211 miles of stream that support rainbow trout and 197 miles of stream that support brook trout in the Belt Creek Drainage. Approximately 37 miles of stream in the Belt Creek Drainage support pure WCT. Due to this relatively large number of headwater streams that hold conservation populations of WCT, the upper portion of the mainstem Belt Creek has good numbers WCT of varying purity. This abundance of WCT populations is primarily an artifact of the presence of naturally formed waterfalls and fragmented habitat in the Belt Drainage. Non-game species in the upper reaches of the drainage include mountain, white and longnose suckers, longnose dace, and Rocky Mountain sculpin.

The statewide fishing pressure and harvest survey for the period 1982-2009 reported an average of about 7,500 angler-days of use annually and ranged from 3,437 in 2001 to 13,424 angler-days in 1997. The most recent data estimated that 10,330 angler-days occurred on Belt Creek in 2009.

Because of substantial fishing pressure and problems with dewatering in the lower portion of this reach, the lower 13 miles does not maintain an adequate self-sustaining trout population. Approximately 3,000 catchable rainbow trout were historically stocked in this section annually from the early 1960’s to 1996. Tributaries to Belt Creek were also stocked with large numbers of non native trout for many years prior to 1996.

This lower reach of Belt Creek between the mouth of Big Otter Creek and the confluence with the Missouri River (39 miles), supports both coldwater and warmwater fisheries. A marginal

resident trout fishery exists in this reach and is limited because of low stream flows, high water temperatures, excessive siltation, and in some areas from acid mine drainage effluent from old coal mines. Rainbow trout are the most common trout species found. Brown trout occur throughout the reach, but in far fewer numbers. To some extent both rainbow and brown trout from the Missouri River migrate up Belt Creek during their spawning season. Mountain whitefish have also been observed to migrate in large numbers into the lower mile of Belt Creek from the Missouri River to spawn. Historically, sauger migrated up Belt Creek (as high as Arrington) during the late spring and resided in the stream until fall as long as flow conditions were adequate. No sauger have been observed in recent years in Belt Creek. However, credible reports of shovelnose sturgeon at Salem Bridge have been reported in recent years. In 1997 high flows in the Missouri River resulted in confirmed reports of northern pike in the sluice boxes section. Non-game fish found in lower Belt Creek include goldeye, longnose, mountain and white suckers, shorthead redhorse, carp and Rocky Mountain sculpin.

FISHING ACCESS

The Belt Creek drainage has a high scenic value. It is a popular recreation area for fishing, hunting, picnicking, camping, hiking, mountain biking, motorized trail riding, and for the adventurous, floating. U.S. Highway 89 parallels Belt Creek throughout the upper section and provides access to most portions of the stream. Much of upper Belt Creek and its tributaries receive a substantial amount of fishing pressure due to its proximaity to Great Falls, the convenient access provided by Highway 89 and the availability of numerous developed and dispersed camping sites. A winter sports area is locate in the upper basin, providing additional easy access to the stream. The only FWP land on Belt Creek that provides angler access is Sluice Boxes State Park. Routes 331 and 228 parallel the stream for about 25 miles of the lower section. Public access to private lands bordering lower Belt Creek has usually been allowed with permission. The remaining 14 miles of this lower portion flows through remote and rugged lands and access is difficult except at the Salem Bridge, about a mile upstream from the mouth.

SPECIAL MANAGEMENT ISSUES

Nineteen populations of genetically pure WCT currently occupy less than 15% (33 miles) of the total historic range in the drainage. Four of the populations are at a moderate risk of extinction over the short term. These represent priorities where short and long term actions are required to reduce extinction risk and provide increased protection or expansion of the populations.

The Belt Creek Drainage is also home to several conservation populations of westslope cutthroat trout, providing opportunities to conserve this native species in the drainage. The long-term goal of cutthroat conservation in the Belt Creek Drainage is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout (see Part 1: Trout: Westslope and Yellowstone Cutthroat Trout for details).

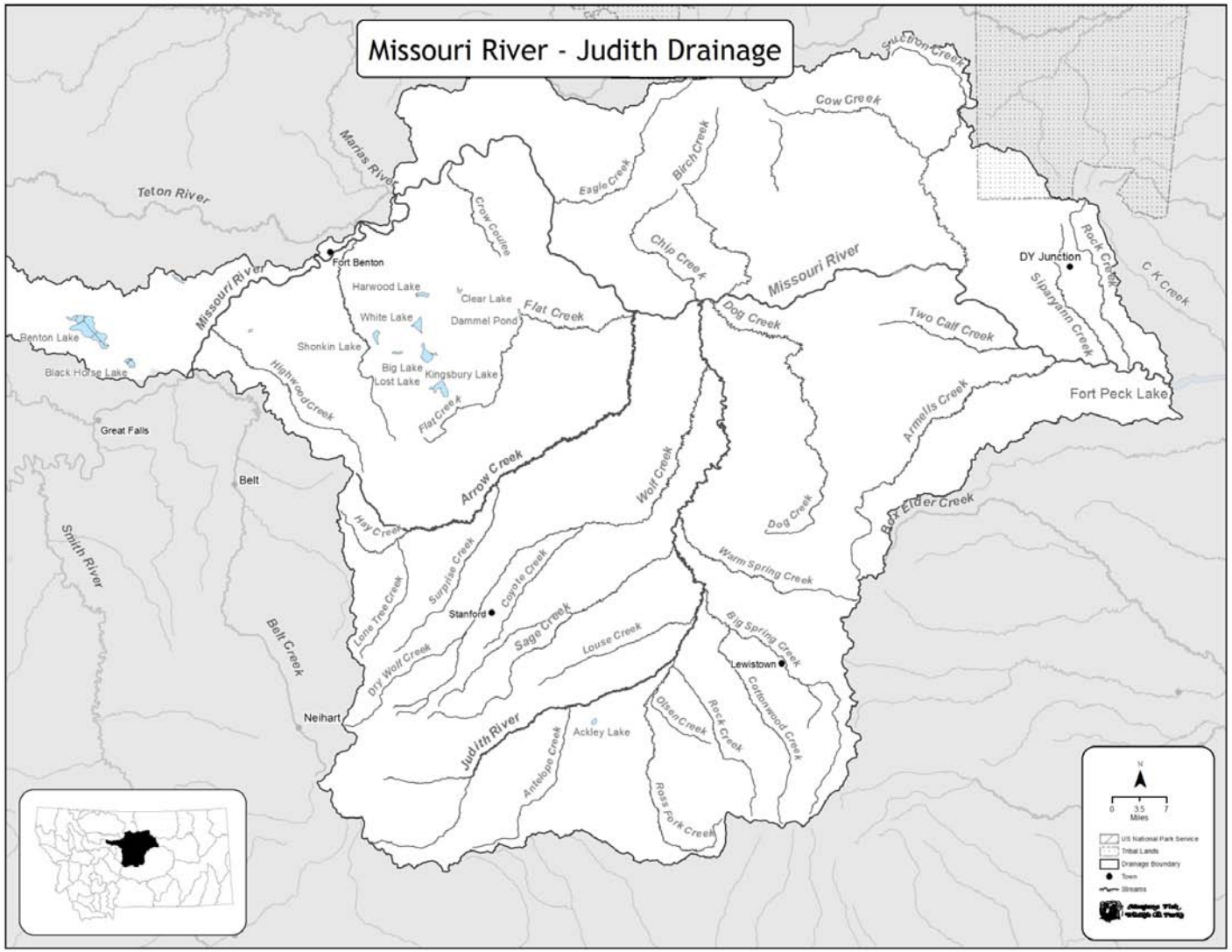
FISHERIES MANAGEMENT DIRECTION FOR BELT CREEK DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Belt Creek (Headwaters to the Mouth of Big Otter Creek)	51 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels providing for consumptive use.
		Mountain whitefish (N)	Wild	General	Maintain numbers within historic range.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations. Expansion downstream of existing occupied area would require a large barrier project on the mainstem Belt Creek. Survey tributaries and upper reaches of mainstem to determine upstream limit of WCT. When biologically feasible, provide for limited consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 90 cfs.					
Big Otter Creek	26.5 miles	Brown trout	Wild	General	Manage as a recreational fishery with the opportunity to catch large brown trout.
		Brook trout, Rainbow trout	Wild	General	Manage as a recreational fishery with some consumptive harvest.
Habitat needs and activities: Maintain spring creek type habitat and instream flows of 5 cfs.					
Logging Creek	11 miles	Brook trout, Rainbow trout, Brown trout	Wild	General	Manage as recreational fishery with consumptive harvest.
		Westslope cutthroat trout (N)	Wild	Conservation	Monitor the conservation population in the headwaters.
Pilgrim Creek	7.5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Collect additional genetic samples and determine if headwater populations remain non-hybridized. Enhance existing barrier near the mouth and remove non-native fish from barrier to pure population in headwaters.
Habitat needs and activities: Modify/enhance existing barrier near the mouth.					
Dry Fork Belt Creek	11 miles	Rainbow trout, Brook trout	Wild	General	Manage as recreational fishery with consumptive harvest.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Westslope cutthroat trout (N)	Wild	Conservation	Evaluate opportunities to expand population throughout the Dry Fork drainage if remediation of heavy metals pollution occurs
Habitat needs and activities: Maintain habitat and instream flows of 7 cfs. Identify potential barrier sites to develop a conservation population of westslope cutthroat trout.					
Oti Park Creek	4.2 miles	Brook trout Westslope cutthroat trout (N)	Wild Wild	Suppression Conservation	Manage to minimize expansion of brook trout population. Maintain or enhance population.
Habitat needs and activities:. Pursue construction of a barrier at a remote site to protect a good population of nearly pure WCT from an expanding brook trout population if a barrier is not installed on Dry Fork Belt Creek. The site would likely require a helicopter concrete pour.					
Carpenter Creek	3 miles	Westslope cutthroat trout (N)	Wild	Conservation	Evaluate opportunities to expand population and provide secure habitat throughout the Carpenter Creek drainage in anticipation of mine remediation and metals pollution in the Carpenter-Snow Creek drainage.
Habitat needs and activities: Identify potential barrier sites near mouth to develop a conservation population of Westslope cutthroat trout.					
Jefferson Creek	5.4 miles	Brook trout Rainbow trout Westslope cutthroat trout (N)	Wild Wild Wild	General Suppression Conservation	Manage to minimize increases in population densities. Manage to minimize presence in the stream. Maintain or enhance population to eventually allow limited harvest.
Habitat needs and activities: Explore potential barrier sites on Belt Creek to prevent non-native fish migration into Jefferson Creek.					
Chamberlain Creek	5.4 miles	Westslope cutthroat trout (N)	Wild	Conservation	Monitor Chamberlain Creek above barrier for presence of brook trout.
Habitat needs and activities: The existing barrier is suspect at high flows because of screen clogging and erosion under the splash pad. Future work should be conducted to modify the screen to pass debris and the splash pad should be extended downstream to prevent passage of non-native fish during significant flow events.					
Belt Creek (Big Otter Creek to Confluence with Missouri River)	37 miles	Rainbow trout, Brown trout Mountain whitefish (N)	Wild Wild	General General	Maintain populations with historic levels providing for consumptive use. Maintain numbers within historic range.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Sauger (N)	Wild	Conservation	Evaluate potential to restore populations.
Habitat needs and activities: Maintain habitat and instream flows of 35 cfs.					
Little Belt Ceek	15.8 miles	Rainbow trout, Brown trout Brook trout Westslope cutthroat trout (N)	Wild Wild Wild	General Suppression Conservation	Maintain a recreational fishery with consumption in majority of stream below barriers. Pursue removal of brook trout above a barrier on private land to benefit WCT in Little Belt Creek population and provide an additional layer of security for the North Fork and Middle Fork Little Belt Creek WCT populations. Pursue opportunities to expand existing Little Belt Creek population downstream to barrier on private land.
Middle Fork Little Belt Creek	2.6 miles	Brook Trout Westslope cutthroat trout (N)	Wild Wild	Suppression Conservation	Suppress brook trout population above barrier to protect WCT population. Monitor the WCT population annually. Expand population downstream if private landowners are amenable.
Habitat needs and activities: Eradication of brook trout above a waterfall barrier on private land would create a WCT population resistant to long-term extinction threats and would include the North Fork and Middle Fork Little Belt drainages.					
North Fork Little Belt Creek	2.4 miles	Brook Trout Westslope cutthroat trout (N)	Wild Wild	Suppression Conservation	Suppress brook trout population above barrier to protect WCT population. Monitor the WCT population annually. Expand population downstream if private landowners are amenable.
Habitat needs and activities: Eradication of brook trout above a waterfall barrier on private land would create a WCT population resistant to long-term extinction threats and would include the North Fork and Middle Fork Little Belt drainages.					
Westslope Cutthroat Trout Genetically Unaltered	33 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk. Allow harvest in robust populations.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Conservation Population Streams (Isolated Single Species Populations)					
Habitat needs and activities: Maintain or improve habitat and explore suitable sites for barriers or reducing fragmentation of WCT occupied habitat.					
Westslope Cutthroat Trout Genetically Altered Conservation Population Streams	59 Miles	Westslope cutthroat trout (N), Hybrids (mixed populations)	Wild	Conservation	Maintain or enhance populations. Allow harvest in robust populations.
Brook Trout Streams	197 Miles	Brook trout	Wild	General	Manage for a consumptive harvest.


Missouri River - Judith Drainage
Teton River
Marias River
Missouri River
Fort Benton
Crow Coulee
Eagle Creek
Birch Creek
Cow Creek
Chip Creek
Missouri River
DY Junction
Rock Creek
C K Creek
Siparyann Creek
Two Calf Creek
Dog Creek
Flat Creek
Harwood Lake
Clear Lake
White Lake
Dammel Pond
Shonkin Lake
Big Lake
Lost Lake
Kingsbury Lake
Benton Lake
Black Horse Lake
Highwood Creek
Flat Creek
Great Falls
Belt
Arrow Creek
Wolf Creek
Armells Creek
Fort Peck Lake
Box Elder Creek
Dog Creek
Hay Creek
Smith River
Warm Spring Creek
Surprise Creek
Coyote Creek
Lone Tree Creek
Stanford
Sage Creek
Louse Creek
Big Spring Creek
Belt Creek
Dry Wolf Creek
Lewistown
Cottonwood Creek
Olsen Creek
Rock Creek
Neihart
Judith River
Ackley Lake
Antelope Creek
Ross Fork Creek
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

MISSOURI RIVER – JUDITH DRAINAGE

PHYSICAL DESCRIPTION

The reach of the Missouri River from Great Falls to the mouth of the Marias River is 54 miles in length. Stream gradient averages 4.8 feet/mile and varies from 18.7 feet/mile at the mouth of Belt Creek to 2.2 feet/mile near the mouth of the Marias River. The principal tributaries entering this reach are Belt, Highwood and Shonkin creeks. Belt Creek contributes a noticeable flow to the Missouri only during the spring runoff period. Belt Creek is presented in a separate section.

The Missouri River from the confluence of the Marias River to the confluence of the Judith River is 67 miles in length. The stream gradient averages 2.1 feet/mile and varies from 3.0 feet/mile near the mouth of Arrow Creek to 1.5 feet/mile at Coal Banks Landing. The Marias River is the only tributary stream in this reach which contributes a noticeable flow to the Missouri. It is discussed in its own section.

The reach of the Missouri River from the confluence of the Judith River to Fort Peck Reservoir is variable due to water elevations in the reservoir, but approximately 85 miles in length. Stream gradient averages 1.9 feet/mile and varies from 3.2 feet/mile near Stafford Ferry to less than 1 foot/mile as the river enters the reservoir. The Judith River is the only tributary stream in this reach that contributes a noticeable flow to the Missouri.

The Judith River is the third largest tributary to the Missouri River in the reach between Canyon Ferry and Fort Peck dams. This stream drains an estimated 2,000 square miles of the Little Belt, Big Snowy, Judith and the North and South Moccasin mountains and surrounding lands of central Montana. The Judith flows northward for 129 miles to its confluence with the Missouri River about 50 air miles north of Lewistown. Major tributaries include the Middle, South and Ross Forks, Big Spring and Warm Spring creeks, and Wolf Creek. Many of the tributary streams go subsurface near the foothills into the limestone geology and emerge downstream. Big Springs Creek and Warm Springs are primarily spring-fed creeks, while Cottonwood Creek, the South Fork Judith River,and the headwaters of Wolf Creek have long reaches that are dry in at least late summer.

The upper Judith River is situated in the mountainous area of the Lewis and Clark National Forest with its tributaries originating at an elevation of about 8,000 feet. The river begins at the confluence of the Middle and South forks and flows within a broad valley through prairie foothills and bench lands. The riparian vegetation, for about half its length consists of dense willow and other shrubs adjacent to hay meadows. Below this, cottonwoods begin to dominate the overstory along with an undergrowth of willows and rose. The average stream gradient is 30 feet/mile. Channel substrate is composed mostly of cobbles and gravel with moderate amounts of siltation.

The lower Judith River, from Big Spring Creek to the confluence with the Missouri River (elevation of 2,430 feet) is a prairie stream receiving run-off from adjacent lowlands and surrounding isolated mountain ranges. It follows a narrow river valley through prairie bench lands and rugged breaks. The river valley averages about one-half mile wide and becomes progressively more deeply entrenched in a downstream direction. Riparian vegetation consists of deciduous woodland dominated by an overstory of cottonwoods with a dense shrubby undergrowth of willows, rose and snowberry. The average stream gradient was 12 feet/mile in 2010, but historic flooding in 2011 has shortened stream length with numerous channel avulsions and increased gradient below Ross Fork Creek. Channel substrate is mostly composed of cobbles and gravel with increasing amounts of siltation downstream.

Land uses in the Judith River drainage are fairly diverse. Basin wide, timber harvest on forest lands has been moderate; however, the South Fork of the Judith has been intensively logged. Agricultural uses occur throughout the drainage. Livestock grazing is moderate on the public forest lands of the upper basin and is a major agricultural practice in the lower basin. Nearly all of the land is privately owned and managed for cattle ranching and farming. Hay and some crop lands exist along the river and are more extensive in the upstream areas. Irrigation is also more intensive here, resulting in severe dewatering of the Judith River for several miles. An offstream storage reservoir, Ackley Lake, located along the upper section of the Judith, stores 6,140 acre-feet and provides irrigation to 1,621 acres. Mining activities in the basin date back to the late 1800s. Gold was the primary mineral sought in the Yogo area of the Little Belt Mountains, however, sapphire mining also proved to be commercially successful. Gold mining was also pursued in the North Moccasin and Judith mountains. Presently, only a minimal amount of mining is ongoing in the Judith River Basin. Water quality issues have developed at a former open-pit gold mine that operated in the North Moccasin Mountains at Kendall. The area where sapphire mining produced commercial quantities near Yogo Creek is an area also popular with recreational placer miners.

Arrow Creek originates in the Little Belt and Highwood mountain ranges and drains portions of Judith Basin, Fergus, and Chouteau counties. The Arrow Creek watershed, occupying approximately 1,224 square miles, lies west of the Judith River drainage andArrow Creek flows northward into the Missouri River. Major tributaries include Flat Creek, Lone Tree Creek, and Cottonwood Creek. Agricultural uses occur throughout the drainage and most lands are managed for cattle ranching and farming. In the northern part of the drainage, the creek flows thorough badlands on its way to the Missouri River. Arrow Creek has a fairly natural hydrograph and may be dewatered in late summer and early fall during dry years. The Arrow Creek drainage is more arid than the Judith basin, with the headwaters holding less snow for a shorter period of time. Double peaked hydrographs can result from prairie snow melting in March and summer thunderstorms causing short-duration, high-intensity discharges. Arrow Creek's channel is very sinuous. Much of the bottomland is privately owned, although DNRC trust lands and BLM-managed lands compose a greater percentage than in the Judith River Basin.

Arrow Creek flows through a wide valley bottom of Quaternary alluvium and these deposits of modern day channels are set within a canyon of sedimentary layers. The wide alluvial valley and

floodplain surround a C-channel type, which characterizes most of lower Arrow Creek, being low in gradient, meandering, and with point-bars and riffle/pool morphology. The cottonwood forest on Arrow Creek is dominated by plains cottonwood. Other riparian tree and shrub species include peach-leaf willow, yellow willow, and sandbar willow. Although present, Russian olives are not found in high densities.

FISHERIES MANAGEMENT

The middle Missouri River supports a diverse warmwater fishery. All of the native fish species that historically occurred here are still found in this reach because of the relatively unaltered state of the river. There are substantial angling opportunities for sauger, walleye, channel catfish, shovelnose sturgeon, smallmouth bass, freshwater drum, burbot and a wide variety of nongame species. The FWP fisheries objective for the middle Missouri River is to emphasize native species management.

The reach of the Missouri River below Morony Dam includes a transition zone between coldwater and warmwater fisheries. The Highwood and Shonkin creek drainages support trout fisheries. Shonkin Creek also has a robust prairie fish assemblage. Thirteen species, including smallmouth bass, were sampled near the mouth in 2004. Sauger have been historically the most abundant game fish found throughout this reach of the Missouri that extends down to the Marias; numbers appear to have declined in recent years. The coldwater game fish include brown and rainbow trout and mountain whitefish. These species are fairly common only in the upper 15 miles. Other cool/warmwater fish found in this reach include burbot, smallmouth bass, channel catfish, shovelnose sturgeon, northern pike, freshwater drum, blue sucker, and goldeye. Forage fish studies on the Missouri River indicate side channels are important habitat areas displaying higher fish diversity and abundance compared to open river areas. Side channel areas are also important rearing areas for goldeye, smallmouth buffalo and bigmouth buffalo. Young-of-the-year and forage fish are thought to use the side channel areas from early June through the end of August; flows of 4,500 cfs are required to keep side channels functional in this reach. Prior research also determined that paddlefish residing in Fort Peck Reservoir and the lower middle Missouri River require a flow of 14,000 cfs at Virgelle to initiate spring migrations to upstream spawning sites. Based on calculations made from USGS data gathered at the Virgelle and Fort Benton gaging stations, it was determined the Missouri River at Fort Benton contributes 80.6% of the median flow of the Missouri River at Virgelle. Therefore, to maintain the annual spring paddlefish migration in downstream reaches, it is recommended that the Missouri River discharge at Fort Benton be maintained at 80.6% of 14,000 cfs, or 11,284 cfs, during the spawning period, which was estimated to be from May 19 to July 5 annually.

Below the mouth of the Marias, the shovelnose sturgeon are amongst the largest found anywhere within the geographical range of the species. Paddlefish, a Species of Concern, inhabit the reach between the Marias and the mouth of the Judith River only during its spawning season. For most of their lives, paddlefish are found in Fort Peck Reservoir. When the Missouri rises to a flow greater than 12,000 cfs during the spring, paddlefish are triggered to leave the reservoir and migrate upstream to spawn. Females make this migration every 2-3 years and males every 1-2

years. Paddlefish have been observed as far upstream as the mouth of the Marias River when flows are extremely high. Previous research identified four spawning areas between the Marias and the Judith. Paddlefish receive light fishing pressure in the reach because of limited access and lack of paddlefish concentrations. Twenty-two non-game species have been found in this reach of the Missouri. Blue sucker, smallmouth buffalo, bigmouth buffalo and freshwater drum are four nongame migratory species that are dependent on high spring flows for successful reproduction that inhabit this reach. In addition to the paddlefish, the endangered pallid sturgeon, the threatened shovelnose sturgeon, as well as sturgeon chub and blue sucker (Species of Concern), use this reach. Pallid sturgeon numbers have increased in this reach as a result of on-going recovery work.

The third reach of the middle Missouri, from the Judith River to Fort Peck Reservoir, supports a warm water fishery. Sauger, shovelnose sturgeon, channel catfish and walleye are the common game fish found in the reach. A major paddlefish snagging fishery exists in the lower 40-mile reach of the middle Missouri River during the spring. There is currently a harvest cap of 500 fish on this paddlefish population, but in 2011 it was estimated about 600 paddlefish were harvested during 14,000 angler days. Future management efforts will be designed to reduce chances of overharvest and maintain a self-sustaining population. FWP's management of paddlefish is discussed in more detail in the special management issues section of this drainage. Several tributaries with prairie fish assemblages, such as Armells Creek (81 miles long), Cow Creek and Eagle Creek, enter in this reach.

In the Judith River drainage, brown trout are the predominant game fish found throughout the reach from the confluence of the South and Middle Forks to Big Spring Creek, followed by mountain whitefish and rainbow trout. A population of brook trout exists in the upper portion of the reach where several springs originate and flow into the river. Non-game species include mountain, white and longnose suckers, longnose dace and Rocky Mountain sculpin. The Judith River receives a moderate amount of fishing pressure in this reach.

The reach of the Judith River from the mouth of Big Spring Creek to the Missouri is primarily a warm water fishery, where sauger and channel catfish are the most abundant game fish. Cold water game fish, including rainbow and brown trout and mountain whitefish, also inhabit this reach seasonally but occur in low numbers during the summer. Twelve non-game species have been found in the Judith River. They include goldeye, carp, western silvery minnow, flathead chub, longnose dace, stonecat, longnose sucker, mountain sucker, and shorthead redhorse all of which are common. Uncommon species present include white sucker, river carpsucker and Rocky Mountain sculpins. In addition, blue suckers migrate into this reach to spawn. The lower Judith River has a diverse fishery, which reflects the variety of habitat conditions present and the transition from a coldwater to a warmwater environment. The lower Judith River receives only a light amount of fishing pressure, most likely due to its remote and fairly inaccessible location.

Rainbow trout are the most abundant game fish in the lower reaches of the South Fork Judith River. Westslope cutthroat trout are more abundant in the headwaters and upper tributaries. Low numbers of brook trout are found throughout the South Fork. Sculpin and mountain whitefish are

common in the lower end above a dry reach. This stream receives substantial fishing pressure for its size. In the Lost Fork Judith River, brook trout are the predominant game fish, followed by rainbow and westslope cutthroat trout hybrids. Rocky Mountain sculpin are found throughout the stream's length. The Lost Fork receives light fishing pressure because of its remote location. Rainbow trout are the most abundant game fish found throughout the Middle Fork Judith River. They are the dominant species found in the canyon area, but are less numerous near the mouth. Brook trout are fairly abundant in the headwater streams and become fairly abundant again near the mouth. Other species present include cutthroat x rainbow hybrids, brown trout and sculpins. The Middle Fork receives a moderate amount of fishing pressure considering its remote location. Yogo Creek, a tributary to the Middle Fork is a popular brook trout and hybrid rainbow trout fishery. It has many dispersed camping sites and a dense rainbow trout and brook trout population.

Big Spring Creek is exceptionally productive, and for its size, is rated as one of Montana's finest fishing waters. The creek is considered the most important trout stream in central Montana. Rainbow and brown trout are the major game species in this reach. Until the last five years, rainbow trout made up the majority of the population, but recently brown trout have been about 50% of the population downstream of Lewistown. Mountain whitefish are also present, along with a few brook trout. Northern pike and walleye are occasionally found. Nongame fish species found in this reach include Rocky Mountain sculpin, longnose dace, longnose sucker, white sucker, mountain sucker, shorthead redhorse, carp and lake chub. Big Spring Creek receives a substantial amount of angler use. The 1982-2009 mail survey of Montana anglers estimated there was an average of 9,833 angler days of use per year on the creek. The majority of use is by bank fishermen; however, Big Spring Creek does receive a considerable amount of floating use. Most floating activity is related to swimming, canoeing, duck hunting, and bird watching. Cottonwood Creek is the main tributary to Big Spring Creek. The fisheries in Cottonwood Creek transition from westslope cutthroat trout in the headwaters to brook trout in the foothills and rainbow and brown trout toward the confluence with Big Spring Creek.

Rainbow trout are the most abundant game fish found in Warm Springs Creek. Water temperatures appear to be above the tolerance levels for rainbow trout spawning, so the population is one of the few streams maintained by stocking. Smallmouth bass were introduced during 1973 and annual stocking has continued. Brown trout and sauger are generally found in low numbers. Other species occurring in Warm Springs Creek include brook trout, channel catfish, common carp, and longnose, white and mountain suckers, shorthead redhorse, longnose dace, fathead minnow, goldeye, yellow perch and Rocky Mountain sculpin. The riparian and aquatic habitats are generally in good condition in the upper portion of the reach. However, poor agricultural practices, including overgrazing by livestock, have caused excessive bank erosion and increased siltation of the stream channel in some channel reaches.

The Arrow Creek drainage contains a warmwater fishery in its lower reaches that includes goldeye, channel catfish, stonecat, and northern redbelly x finescale dace hybrid. In its headwaters, brook, and westslope cutthroat trout are present. There are approximately 47 miles

of suitable habitat for salmonids. Probably 43 of these miles are inhabited by brook trout, and 4 miles by westslope cutthroat trout.

The long-term goal of cutthroat conservation in the Judith River Drainage is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout. See Part 1: Trout: Westslope and Yellowstone Cutthroat Trout for details.

HABITAT

Present-day flow regimens of the Missouri River in the reach from Morony Dam to the mouth of the Marias are not natural because of regulation and storage at several upstream dams. Flow is largely controlled by Canyon Ferry Reservoir. There are five hydroelectric dams within the Great Falls area that are operated by the PPL Montana. These dams do not typically affect streamflows because the FERC order that licenses the operation of the dams, stipulates that Morony Dam is to be operated to maintain uniform flows downstream. Long-term flow records are available for two USGS gage sites within this reach. For the gage site at the head of the reach below Morony Dam, the average annual flow for a 54-year period of record (1957-2011) was 7,395 cfs. Mean monthly flows ranged from 5,520 cfs in September to 13,800 cfs in June. The average annual flow for a 121-year period of record (1891-2011) at the Fort Benton gage site was 7,608 cfs. Mean monthly flows range from 4,890 cfs in September to 18,200 cfs in June.

In the second reach from the confluence of the Marias River to the confluence of the Judith River, the Marias River discharge augments the Missouri River flows by about 10% during most of the year. Present day flow regimens in this reach are similar to the reach upstream of the Marias. The Marias does not greatly increase spring flows in the Missouri because of flood control and regulation by Tiber Reservoir. However, it may be useful in the future to restore a more natural flow regime to the Missouri River. Long-term flow records are available for the USGS Virgelle gage station located 18 miles below the confluence of the Marias River. The average annual flow for a 76-year period of record (1936-2011) was 8,320 cfs. Mean monthly flows ranged from 5,830 cfs in September to 17,800 cfs in June.

In the lowest reach from the confluence of the Judith River to the headwaters of Fort Peck Reservoir, the Judith River augments the Missouri River by about 5% throughout most of the year. Present-day flow regimens of the Missouri River are similar to the upstream reach and are regulated by upstream reservoirs. Long-term flow records are available for the Fred Robinson Bridge USGS gaging station located 23 miles above Fort Peck Reservoir. The average annual flow for a 77-year period of record (1935-2011) was 8,988 cfs. Mean monthly flows range from 6,180 cfs in September to 19,400 cfs in June.

FISHING ACCESS

Adequate access has been developed at most accessible locations on the Middle Missouri Wild and Scenic River reach. About 80% of the Missouri River in this reach lies within the Upper Missouri River Breaks National Monument and the Charles M. Russell National Wildlife

Refuge. The river is also classified as a Wild and Scenic, and there are motorboat use restrictions on some segments from June 15 – September 15. Recreational access is limited in the area, with only 8 boat ramps throughout the reach located at Widow Coulee (river mile 2102), Carter Ferry (river mile 2089), Fort Benton (river mile 2073), Loma (river mile 2053), Coal Banks (river mile 2032), Judith Landing (river mile1982), Robinson Bridge (river mile 1921) and Rock Creek (river mile 1907). The reach of the Missouri River from Great Falls to the mouth of the Marias River includes the upper 21 miles of the Upper Missouri National Wild and Scenic River, which begins midway in the reach at Fort Benton. From this point, the Missouri receives heavy recreational use even though there are few access points. Access to the river is limited because of the rugged terrain and lack of development within the narrow river corridor. Public access points include a ferry crossing with adjacent FAS primitive boat ramp, a campground with a boat ramp, and a bridge crossing plus the Morony Dam area, and the Fort Benton town site.

From the confluence of the Marias to the confluence of the Judith River, the entire reach is within the Upper Missouri National Wild and Scenic River corridor, and most is within the Upper Missouri River Breaks National Monument. Nearly half of the use in this reach is recreational boating. Other activities include fishing, hunting, picnicking, camping and trapping. About 40% of the river is bordered by BLM land. The greater portion of public land is located in the lower 30 miles of the reach. Most of the public land is difficult to reach, other than by floating because of the rugged terrain and lack of development within the narrow river corridor. There is one ferry crossing, a bridge and two campgrounds where the public can access the river.

From the confluence of the Judith River to Fort Peck Reservoir, 62 miles of this reach are within the Upper Missouri National Wild and Scenic River. This portion of the Missouri includes the rugged breaks country. There is considerable recreational use in this portion of the Missouri because of its nationally renowned beauty and wilderness qualities, fishing and hunting opportunities. The upper portion of this reach is within the Upper Missouri River Breaks National Monument, and the lower 23 miles of the reach is surrounded by the Charles M. Russell National Wildlife Refuge. Nearly the entire river in this reach is bordered by land administered by the BLM or USFWS. Most of the reach is difficult to access, other than by floating, because of the rugged terrain and large areas of roadless country. Access is limited to three bridge or ferry crossings. Only a few vehicle trails lead down to the river, with most of these being located in the lower 23 miles of river.

The Judith River is a popular recreation area for fishing, hunting, picnicking, camping, hiking and floating. The headwaters of the Judith and its tributary drainages are generally on USFS lands and have sufficient public access. A considerable portion of the forested land in the upper basin is managed for semi-primitive recreation. Access to the Judith River varies along its course. The first 25 miles is paralleled by a county road with several bridge crossings. For the next 45 miles there are only a few roads near the floodplain, but several county roads and highways cross the river at bridges. The remaining 60 miles flow through remote badlands where there are only two access points, including at the confluence with the Missouri. Most of the land adjacent to the stream is privately owned, but access is generally allowed with permission. Additional access is needed on the Judith River downstream of the South and Middle forks, on

Warm Springs Creek, and Big Spring Creek downstream of Cottonwood Creek. FWP already has eight FASs on Big Spring Creek, but the additional access needs are due to it being a stream that is most easily accessed from the bank, rather than boat.

SPECIAL MANAGEMENT ISSUES

FWP has worked closely with numerous partners in the Arrow, Judith and Mid Missouri drainages to help preserve and restore the unique native and wild fisheries available in these systems. Recent partners have included the PPL Montana, Montana State University, University of Idaho, BOR, and Western Area Power Administration, and the USFS. Projects have included assisting with pallid sturgeon restoration, paddlefish population research, and research on other native riverine species. An ongoing effort in cooperation with USFS has successfully increased and restored pure westslope cutthroat trout into the headwaters of several streams in the Judith, Arrow and Highwood drainages. Additional work is needed.

An additional USGS gaging station in the Judith near Utica (historic site) or near Hobson would allow better monitoring of drought conditions and instream flows in this drainage. The entire Judith drainage currently has only one USGS gaging station.

A particularly important issue in this drainage involves paddlefish management. Paddlefish anglers have seen several changes to the regulations and season structure since 2006. The current paddlefish season runs from May 1st to June 15th, and the harvest of paddlefish closes once the estimated harvest reaches the cap of 500 paddlefish. Anglers are allowed to snag and release paddlefish throughout the season, regardless of whether or not they already harvested a paddlefish. The 500-fish harvest cap has been met or exceeded in all but one year (2008) since its implementation in 2008. Furthermore, the date in which the harvest of paddlefish closed has occurred earlier each consecutive year thereafter. In 2009 the harvest cap was reached on May 22nd, in 2010 it was reached on May 16th, in 2011 and 2012 the harvest cap was reached on May 14th and May 10th, respectively The current paddlefish season structure has put more pressure on paddlefish anglers to get to the river early enough to have a chance at harvesting a fish before the season closes. Anglers have voiced their concerns over the crowding issues created and difficulty in planning a fishing trip under the current season structure. FWP will continue to evaluate and modify the paddlefish season structure with regard to paddlefish management and concerns expressed by paddlefish anglers.

FWP will also continue to tag adults in the spring to track movement, growth, and estimate population size. Young-of-year transects will be conducted in late summer to estimate reproductive success as it pertains to spring flows on the Missouri River and Fort Peck Reservoir water elevations (rearing habitat). Creel surveys will continue to be conducted during the paddlefish season on the Missouri River from river mile 1921 to1899 (James Kipp Recreation Area and Campground to Lower Peggy's Bottom), and a phone creel survey will be conducted after the season. These measures are critical to maintain the paddlefish population at a sustainable level.

FISHERIES MANAGEMENT DIRECTION FOR THE MISSOURI RIVER - JUDITH DRAINAGES

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Missouri River – Great Falls to Confluence with the Marias River	54 miles	Sauger (N)	Wild	Conservation	Maintain populations within historic levels and manage as a recreational fishery with limited harvest.
		Walleye, Northern pike, Freshwater drum (N), Smallmouth bass	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Rainbow trout, Brown trout , Shovelnose sturgeon (N), Channel catfish (N)	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
		Goldeye (N)	Wild	General	Manage as a recreational fishery with some consumptive harvest.
		Blue sucker (N), Stonecat (N)	Wild	Conservation	Maintain populations within historic levels.
Habitat needs and activities: Maintain stream flows of 3,700 cfs from 9/1-3/14 for maintenance of riffles, 4,887 cfs from 3/14-5/18, 11,284 cfs from 5/19-7/5 for paddlefish spawning migration, and 4,500 cfs from 7/6-8/31 for maintaining side channel habitat for forage species.					
Highwood Creek	37.6 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.
Habitat needs and activities: Maintain 10 cfs for instream flows to maintain aquatic habitat.					
Highwood Creek Drainage - Westslope Cutthroat Trout Genetically Unaltered	2 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Conservation Population Streams (Isolated Single Species Populations) (1 Stream)					
Highwood Creek Drainage - Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (Isolated Single Species Populations) (2 Streams)	5-7 miles	Westslope cutthroat trout (N)	Wild	Conservation	Continue work to establish two new populations of 100% genetically unaltered WCT populations to reduce extinction risk.
Shonkin Creek	52 miles	Brook trout	Wild	General	Manage as a recreational fishery with consumptive harvest
Habitat needs and activities: Maintain instream flow of 7 cfs for aquatic habitat.					
Missouri River - Confluence of the Marias River to the Judith River	67 miles	Sauger	Wild	Conservation	Maintain populations within historic levels, manage as a recreational fishery with limited harvest.
		Walleye, Northern pike, Freshwater drum (N), Smallmouth bass	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Shovelnose sturgeon (N), Channel catfish (N)	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Pallid sturgeon (N)	Hatchery/Wild	Conservation	Maintain and enhance existing population levels to reduce extinction risk.
		Paddlefish (N)	Wild	Restrictive regulations	Maintain populations within biologically healthy levels and manage as a recreational fishery with limited harvest through a cap system.
		Burbot (N)	Wild	General	Maintain populations within historic levels.
		Goldeye (N)	Wild	General	Manage as a recreational fishery with some consumptive harvest.
		Blue sucker (N)	Wild	Conservation	Maintain populations within historic levels.
Habitat needs and activities: Maintain 4,300-14,000 cfs for instream flows as indicated by the following to maintain fisheries. Maintain stream flows of 4,300 cfs from 9/1-3/14 for maintenance of riffles, 5,571 cfs from 3/14-5/18, 14,000 cfs from 5/19-7/5 for paddlefish spawning migration, and 5,400 cfs from 7/6-8/31 for maintaining side channel habitat for forage species.					
Missouri River - Confluence of the Judith River to the headwaters of Fort Peck Reservoir	85 miles	Sauger	Wild	Conservation	Manage to maintain populations within historic levels in upper reaches and provide a recreational fishery with limited harvest.
		Walleye, Freshwater drum (N), Smallmouth bass	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Shovelnose sturgeon (N), Channel catfish (N)	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.
		Pallid sturgeon (N)	Hatchery/Wild	Conservation	Maintain and enhance existing population levels to reduce extinction risk.
		Paddlefish (N)	Wild	Restrictive Regulations	Maintain populations within biologically healthy levels and manage as a recreational fishery with limited harvest through a cap system.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Burbot (N)	Wild	General	Maintain populations within historic levels.
		Goldeye (N)	Wild	General	Manage as a recreational fishery with some consumptive harvest.
		Stonecat (N)	Wild	Conservation	Maintain populations within historic levels.
Habitat needs and activities: Maintain 4,700-15,302 cfs for instream flows as indicated by the following to maintain fisheries. Maintain stream flows of 4,700 cfs from 9/1-3/14 for maintenance of riffles, 7,100 cfs from 3/14-5/18, 15,302 cfs from 5/19-7/5 for paddlefish spawning migration, and 5,800 cfs from 7/6-8/31 for maintaining side channel habitat for forage species.					
Arrow Creek – Lower Reaches	64 miles	Channel catfish	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.
		Goldeye	Wild	General	Manage as a recreational fishery with some consumptive harvest.
		Stonecat, Northern redbelly x finescale dace hybrid	Wild	Conservation	Maintain populations within historic levels.
Arrow Creek Headwaters - Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (Isolated Single Species Populations) (2 Streams)	4 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Habitat needs and activities: Examine methods to protect one population from competition or hybridization.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Arrow Creek Headwaters - Brook trout Habitat	43 Miles	Brook trout	Wild	General	Maintain recreational fishery for consumptive harvest where they pose no threat to westslope cutthroat trout populations.
Judith River - South /Middle Fork Confluence to Big Spring Creek	58 Miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Manage as a recreational fishery with harvest.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
Habitat needs and activities: Maintain 25 cfs for instream flows to maintain aquatic habitat.					
Judith River – Big Spring Creek to Mouth	71 Miles	Sauger (N)	Wild	Conservation	Manage to maintain populations within historic levels and provide a recreational fishery with limited harvest.
		Walleye, Northern pike, Rainbow trout, Brown trout Smallmouth bass	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Channel catfish (N)	Wild	General	Maintain populations within historic levels and manage as a recreational fishery.
		Goldeye (N)	Wild	General	Manage as a recreational fishery with some consumptive harvest.
		Stonecat (N)	Wild	Conservation	Maintain populations within historic levels.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
		Blue sucker (N)	Wild	Conservation	Maintain spawning and rearing populations within historic levels.
Habitat needs and activities: Maintain 160 cfs for instream flows to maintain aquatic habitat. Improve flow monitoring and management by installing a stream flow gage station near Utica or Hobson.					

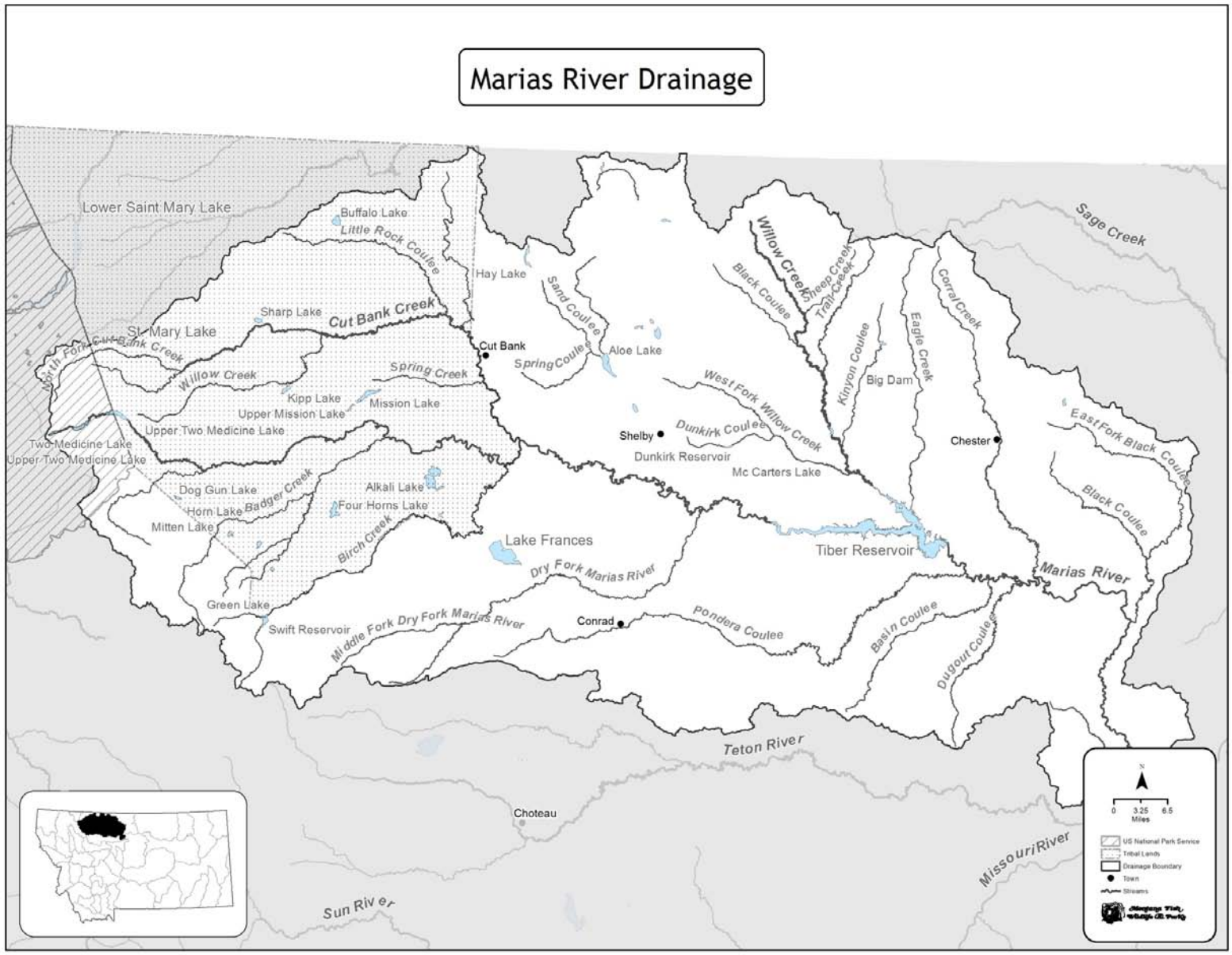
Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
South Fork Judith River	20.6 miles	Rainbow trout, Brown trout	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Westslope Cutthroat trout (N)	Wild	Conservation	Maintain and secure genetically altered population from competition and continued hybridization.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
Habitat needs and activities: Maintenance of existing trout habitat by providing 3.5 cfs of instream flow.					
Lost Fork Judith River	9 miles	Rainbow trout, Brook trout	Wild	General	Manage as a recreational fishery with consumptive harvest.
Habitat needs and activities: Maintain habitat and instream flows of 14 cfs.					
Middle Fork Judith River	13.1 miles	Rainbow trout, Brook trout, Brown trout	Wild	General	Manage as a recreational fishery with consumptive harvest.
Habitat needs and activities: Maintain habitat and instream flows of 22 cfs.					
Big Spring Creek –hatchery to Cottonwood Creek	23.7 miles	Rainbow trout, Brown trout	Wild	Restrictive Regulations	Maintain a recreational fishery with no harvest until PCB cleanup completed. Evaluate allowing harvest after completion of cleanup.
		Mountain whitefish (N)	Wild	Restrictive Regulations	Maintain populations within historic levels with no harvest until PCB cleanup completed. Evaluate allowing harvest after completion of cleanup.
Habitat needs and activities: Maintain habitat and instream flows of 110 cfs. Restore habitat and channel form on channelized sections. Pursue additional access for bank anglers.					
Big Spring Creek – Cottonwood Creek to Mouth	8.2 miles	Rainbow trout, Brown trout	Wild	General	Maintain a recreational fishery with consumptive harvest.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
		Sauger (N)	Wild	Conservation	Manage to maintain populations within historic levels and provide a recreational fishery with limited harvest.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Maintain habitat and instream flows of 100 cfs. Pursue additional access for bank anglers.					
East Fork Big Spring Creek	24.8 miles	Rainbow trout, Brook trout, Brown trout	Wild	Restrictive Regulations	Maintain a recreational fishery with no harvest.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Habitat needs and activities: Maintain habitat and instream flows of 7.5 cfs.					
Cottonwood Creek	32 miles	Brook trout Rainbow trout, Brown trout	Wild	General	Maintain a recreational fishery with consumptive harvest
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Habitat needs and activities: Maintain habitat and instream flow of 4.5 cfs in Cottonwood Creek.					
Beaver Creek (Tributary to Cottonwood)	13 miles	Brook trout	Wild	General	Maintain a recreational fishery with consumptive harvest.
Warm Springs Creek	28 miles	Rainbow trout	Hatchery	Put and Take	Maintain a recreational fishery with consumptive harvest with continued plants.
		Brown trout	Wild	General	Manage as a recreational fishery with consumptive harvest.
		Smallmouth bass	Hatchery	General	Manage as a recreational fishery with consumptive harvest.
		Sauger (N)	Wild	Conservation	Maintain populations within historic levels and manage as a recreational fishery with limited harvest.
		Stonecat (N)	Wild	Conservation	Maintain populations within historic levels.
Habitat needs and activities: Maintain habitat and instream flows of 110 cfs.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Yogo Creek	13.7 miles	Brook trout, Rainbow trout	Wild	General	Manage as a recreational fishery with consumptive harvest to minimize potential for competition and hybridization of mixed WCT population.
		Westslope cutthroat trout (N)	Wild	Conservation	Minimize threats to genetically altered population from competition and additional hybridization.
Habitat needs and activities: Maintain habitat and instream flows of 3 cfs.					
Judith River Drainage - Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (Isolated Single Species Populations) (5 Streams)	10 Miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Judith River Drainage - Westslope Cutthroat Trout Genetically Altered (10 Streams) & Mixed Population (10 Streams)	54.5 Miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk. Explore options to limit non-natives in mixed populations.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Judith River Drainage - Brook Trout Streams	304 Miles	Brook trout	Wild	General	Maintain recreational fishery for consumptive harvest where they pose no threat to westslope cutthroat trout populations.
Ackley Lake	226 Acres	Rainbow trout	Hatchery	Put, Grow and Take	Maintain recreational fishery for consumptive harvest by continued stocking.
Habitat needs and activities: Work with water users to maintain minimum pool elevation.					
East Fork Reservoir	90 acres	Yellow perch	Wild	General	Maintain recreational fishery for consumptive harvest.
		Northern pike	Wild	Suppression	Maintain recreational fishery for consumptive harvest.
		Largemouth bass	Hatchery	General	Develop recreational fishery for consumptive harvest by stocking.
		Rainbow trout	Hatchery	General	Develop recreation fishery for consumptive harvest if low levels of wild fish present.
Habitat needs and activities: Work with City of Lewistown and NRCS to explore opportunities to use stored water to meet instream flows of Big Spring Creek during time of drought.					
Lower & Upper Carter Ponds	57 acres	Rainbow trout	Hatchery	Put, Grow and Take	Maintain recreational fishery for larger sized fish and consumptive harvest by continued stocking.
Big Casino Creek Reservoir	16 acres	Rainbow trout	Hatchery	Put and Take	Maintain recreational fishery for larger sized fish and consumptive harvest by continued stocking.
		Yellow Perch	Wild	Suppression	Encourage harvest to control numbers. Evaluate using a predator to manage numbers.
Rhoda Lake	3 acres	Westslope cutthroat trout	Hatchery	Put-Grow-Take	Maintain native species (WCT or Arctic grayling) recreational fishery for consumptive harvest by continued stocking.
Cow Creek-Headwaters to	8 miles	Brook trout	Wild	General	Protect habitat and provide fish passage when applicable.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Cow Creek Reservoir					
Cow Creek Reservoir	82 acres	Brook trout, Yellow perch, Black crappie	Wild/ Hatchery	General/Put, Grow and Take	Continue to monitor populations and stock when necessary.
		Tiger muskie	Hatchery	Quality	Manage tiger muskie for trophy fishery (fish > 40 inches).
		Channel catfish	Wild/ Hatchery	Put, Grow and Take	Evaluate channel catfish population and supplement with stocking as needed.
		Walleye	Hatchery	Put, Grow and Take	Stock 5,000 walleye fingerling on alternate years.
Habitat needs and activities: Work with Sand Creek Ranch to repair dam and implement reservoir operations plan that benefits fish production. Maintain instream flow of 4.5 cfs in Cow Creek above reservoir to protect fish habitat.					
Cow Creek-Cow Creek Reservoir Tailwaters to Confluence with Missouri River	46 miles	Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide fish passage when applicable.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Elks Country Club Pond	1 Acre	Rainbow trout	Hatchery	Family Fishing Water	Maintain as a Children's Fishing Water.
Lower Frog Pond	1.2 Acre	Rainbow trout	Hatchery	Family Fishing Water	Maintain as an urban fishery.
Upper Frog Pond	1.2 Acre	Rainbow trout	Hatchery	Family Fishing Water	Maintain as an urban fishery.
Private & Public Ponds	-	Trout, Warm water species	Hatchery/Wild	Put and Take/General	Maintain existing pond fisheries available to the public for harvest.
Habitat needs and activities: Enhance structure in ponds when possible.					


Marias River Drainage
Lower Saint Mary Lake
Buffalo Lake
Little Rock Coulee
Hay Lake
Sharp Lake
Cut Bank Creek
St. Mary Lake
North Fork Cut Bank Creek
Cut Bank
Sand Coulee
Spring Coulee
Aloe Lake
Willow Creek
Spring Creek
Kipp Lake
Mission Lake
Upper Mission Lake
Upper Two Medicine Lake
Two Medicine Lake
Upper Two Medicine Lake
Shelby
Dunkirk Coulee
Dunkirk Reservoir
West Fork Willow Creek
Mc Carters Lake
Dog Gun Lake
Badger Creek
Alkali Lake
Horn Lake
Four Horns Lake
Mitten Lake
Birch Creek
Lake Frances
Dry Fork Marias River
Green Lake
Swift Reservoir
Middle Fork Dry Fork Marias River
Conrad
Pondera Coulee
Teton River
Choteau
Sun River
Missouri River
Willow Creek
Sheep Creek
Trail Creek
Black Coulee
Kinyon Coulee
Big Dam
Eagle Creek
Corral Creek
Sage Creek
Chester
East Fork Black Coulee
Black Coulee
Tiber Reservoir
Marias River
Basin Coulee
Dupuyer Coulee
N
0 3.25 6.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

MARIAS RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Marias River is the largest tributary of the Missouri River between Canyon Ferry and Fort Peck dams. This north-central prairie stream drains about 7,100 square miles of the Rocky Mountain Front and Lewis Mountain ranges. The Marias begins 12 miles north of Valier (elevation 3,280 feet) and flows 170 miles east and south to its confluence with the Missouri River near Loma (elevation 2,550 feet). Major tributaries include the Two Medicine River, Cutbank, Badger, and Birch creeks. The Teton River joins the Marias about 1 mile upstream from the Marias River's mouth, and is discussed in its own section. Within this geographic area there are 40 lakes or reservoirs, totaling 24,227 surface acres.

The upper Marias River basin is situated in the mountainous area of the Lewis and Clark National Forest and Glacier National Park. Its upper tributaries originate at an elevation of about 10,000 feet and flow out onto the prairie. There is little development in the foothill transition zone between the mountains and prairie. The Marias originates at the confluence of the Two Medicine River and Cutbank Creek about 35 miles east of the mountain zone. The upper mainstem reach flows 60 miles before entering the headwaters of Tiber Reservoir (Lake Elwell). Within this reach, the Marias flows through a rolling prairie landscape while entrenched in a well-defined valley about 1 mile wide. Soft shale and sandstone bluffs flank the river, rising 200 to 400 feet above the valley floor. The riparian vegetation consists of deciduous woodlands dominated by an overstory of cottonwoods and an undergrowth of willows, rose, and buffalo berry. The overall stream gradient is 5 feet/mile and varies from 11 feet/mile in the upper portion to less than 2 feet/mile in the lower end of the reach. Channel substrate consists primarily of cobbles and gravel with moderate amounts of siltation.

The lower Marias mainstem extends from Tiber Dam and flows for 78 miles to its confluence with the Missouri River. It lies in the semi-arid prairie lands at elevations between 3,000 and 4,000 feet. This area is moderately dissected with drainages that collect lowland runoff chiefly from March through June. With the exception of the Teton River, there are no perennial tributary streams joining the Marias. In fact, due to water management upstream, the lower Teton River has also not been perennial in most recent years. Flow regimens of the lower Marias River are completely regulated by the operations of Tiber Reservoir. Tiber Dam was completed in 1955 and is operated by the BOR. This reservoir stores the high spring runoff and augments base flows of the lower river.

Throughout its entire course, the lower Marias is entrenched in a well-defined river valley. The valley is about 3/4 mile wide at the upper and lower ends, and narrows in the middle to form a scenic canyon less than 400 yards wide. Shale and sandstone bluffs border the river and rise 200 to 400 feet above the narrow floodplain. The riparian vegetation is dominated by older cottonwood trees with a moderate undergrowth of rose and buffalo berry. Islands and lower floodplain areas support stands of willow. The floodplain throughout the lower river is in a static condition because of the regulated flows and the absence of regular flooding events. This has limited the abundance of early-aged cottonwood stands and other riparian vegetation dependent on flooding. The overall stream gradient is 3.5 feet/mile and varies only slightly from 3.0-4.5

feet/mile. Channel substrate is mostly composed of cobbles and gravel. Siltation increases in a downstream progression from Tiber Dam.

Land uses in the Marias River drainage are fairly diverse. In the forested areas of the upper basin, a considerable portion is in designated wilderness that includes the Bob Marshall Wilderness Area and Glacier National Park. Forest Service lands outside the Bob Marshall Wilderness Area are managed for semi-primitive recreation, livestock grazing, and minor amounts of timber harvest. A significant part of the upper basin is contained within the Blackfeet Indian Reservation, where fisheries resources are managed by the Blackfeet Tribe in cooperation with the USFWS. Grain and hay production and livestock grazing are principal uses which occur in the prairie lands of the upper and lower basins. Most of the land in this area outside the Blackfeet Reservation is privately owned. There are a few scattered parcels of federal land managed by either the BLM or BOR. These lands are primarily located along the perimeter of Tiber Reservoir and areas adjacent to the lower Marias River. The river and surrounding lands are important recreation areas. Fishing, hunting, picnicking, and floating are popular activities associated with the river environment.

FISHERIES MANAGEMENT

The headwaters of the Marias River include Cutbank Creek and the Two Medicine River, which join to form the Marias River just south of Cutbank, Montana. Cutbank Creek, from where it leaves the Blackfeet Reservation and forms the eastern reservation boundary, is primarily a coldwater stream with rainbow and brown trout and mountain whitefish in its lower 19 miles. However, chronic dewatering limits its fisheries potential. The Two Medicine River flows approximately 40 miles from west to east, much of it on the Blackfeet Reservation. The Two Medicine River drainage contains larger tributaries, which are Badger, Birch, and Dupuyer creeks, and consists of about 773 miles of perennial streams. Approximately 123 perennial streams are named within the Two Medicine subbasin. The headwater tributaries to the Two Medicine River are generally cold and unproductive with low densities of trout.

The headwater drainage currently supports approximately 240 miles of stream inhabited by brook trout, 194 miles that support rainbow trout, 41 miles that support genetically unaltered westslope cutthroat trout in 12 streams, and 33 miles of stream containing genetically altered (hybridized) WCT in 11 streams. The brook and rainbow trout are managed as recreational fisheries with consumptive harvest, while the unaltered WCT are being managed to maintain or enhanced their populations to reduce the risk of extinction. The genetically altered populations are managed to maintain or enhance their populations as well, although harvest of robust populations is acceptable. The long-term goal of cutthroat conservation in the Marias River Drainage is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout. See Part 1: Trout: Westslope and Yellowstone Cutthroat Trout for details.

The reach of the Marias River above Tiber Reservoir includes both coldwater and warmwater species and becomes primarily a warmwater fishery near Tiber Reservoir (Lake Elwell) where walleye are the most abundant game fish. Coldwater game fish, including rainbow trout and mountain whitefish, also inhabit this reach, but in lower numbers. Northern pike, yellow perch, and burbot are other resident fish species of interest to many anglers. In addition, non-game fish present include common carp, flathead chub, lake chub, emerald shiner, fathead minnow,

longnose dace, and Rocky Mountain sculpin, as well as mountain, white, and longnose suckers. Walleye use the upper Marias for spawning and a segment of the population remains in the river throughout the summer. Young-of-the-year walleye have been sampled during the summer, indicating that the river also provides rearing habitat. Larger-sized rainbow trout are found in the river mainly in the spring and early summer. The upper Marias River has only a moderate fishery. Fishing pressure has averaged 1,602 angler days from 2001-2009.

Below Tiber Dam 21 miles downstream to Highway 223 (Circle Bridge), the coldwater releases from the dam have altered the aquatic environment to favor coldwater salmonid species. Mountain whitefish exist in high numbers and are the most abundant game fish in the reach. Rainbow and brown trout occur in fair numbers, exhibiting excellent growth rates. Warmwater game fish, including sauger, walleye, northern pike, and burbot also inhabit this reach, but in lower numbers. Fourteen species of non-game fish have been sampled in this reach, including goldeye, common carp, flathead chub, lake chub, emerald shiner, Western silvery minnow, fathead minnow, longnose dace, river carpsucker, shorthead redhorse, longnose sucker, white sucker, yellow perch, and Rocky Mountain sculpin. The reach has a good fishery primarily because of improved water management by the BOR, which maintained minimum instream flows. This tailwater fishery is the only trout stream within a 50-mile radius, and it receives a moderate amount of angler use. Because of limited natural reproduction, spawning is supplemented by stocking trout.

The reach of the Marias River from Highway 223 (Circle Bridge) 57 miles downstream to the mouth contains a warmwater fishery in which sauger are the most abundant resident game fish. Walleye occur in fair numbers and are more numerous in the lower portion of the reach. Channel catfish are found in moderate numbers throughout the lower Marias. Game fish that migrate from the Missouri River into the Marias to spawn are shovelnose sturgeon, sauger, walleye, and channel catfish. Shovelnose sturgeon have been sampled throughout this reach during their spawning period, late-May through June. A moderate population of mountain whitefish, and an occasional brown trout, are the coldwater game fish found throughout the lower river. Sizes of sauger and walleye are about average for Montana river populations. The sizes reported for shovelnose sturgeon are for only the adult spawning segment; however, the maximum sizes found here surpass most other records and underscore the value of this high quality population. Sixteen resident non-game fish species have been sampled in the lower Marias River, including goldeye, common carp, flathead chub, lake chub, emerald shiner, plains minnow, western silvery minnow, fathead minnow, longnose dace, river carpsucker, shorthead redhorse, longnose sucker, white sucker, mountain sucker, stonecat, and Rocky Mountain sculpin. Blue sucker, smallmouth buffalo, bigmouth buffalo, and freshwater drum are the migratory species found in the river during their spawning seasons, but they reside in the Missouri River during the rest of the year. This reach of the Marias, mostly the lower 6 miles, receives intensive angling pressure during the spring spawning season (April through mid-July). During the rest of the season, there is a moderate amount of angler use. The entire reach below Tiber Dam to the mouth averaged 3,495 angler days per year from 2001-2009.

Both Lake Frances and Tiber Reservoir support fisheries where anglers focus angling on walleye, yellow perch and northern pike. Fisheries monitoring is focused on these species and forage species in an effort to provide an adequate forage base for the top-level predators. While the Lake Frances fishery requires stocking biannually to maintain walleye numbers, Tiber

Reservoir walleye have provided adequate recruitment through wild reproduction after stocking that occurred back in the early 1970s and again in 1986 and 1988. The frequency of stocking in Lake Frances is being evaluated in an effort to provide high walleye growth rates and a desirable size structure. Angler use has average 12,313 angler days per year on Lake Frances and 17,878 angler days on Tiber Reservoir for the 27-year period from 1982-2009.

HABITAT

Long-term USGS flow records are available for the Marias River near Shelby (river mile 140.6) and below Tiber Dam near Chester (river mile 78.3). The mean annual flow near Shelby for a 108-year period of record (103 years of data) from 1903-2011 was 885 cfs; the peak flow was recorded in 1964 at 241,000 cfs and was associated with a dam failure in a flood year (1964). The mean annual flow below Tiber Dam for a 65-year interrupted period of record (58 years of data) between 1945-2011 was 800 cfs. Extreme flows since Tiber Dam was completed in 1955 have ranged from a low of nearly zero to a high of 10,400 cfs. A shorter period of record (13 years) for the Marias River near the mouth at Loma between 1960-72 showed a mean annual flow of 977 cfs, with a low of 45 cfs and a high of 10,800 cfs.

The largest user of water in the Marias Basin is irrigated agriculture. A total of 206,696 acre-feet or 34% of the average annual flow was consumed during 1980, a fairly typical year. Including Tiber Reservoir, four other reservoirs in the basin have storage capacities greater than 1,000 acre-feet. All except Tiber are used primarily for irrigation. These reservoirs have an estimated total storage capacity of 1,542,158 acre-feet.

Water temperatures downstream of Tiber are also affected by the operation of the dam. Deep cold water releases from the reservoir significantly reduced the river's summer temperatures at least 20 miles below the dam. The 7.5MW hydroelectric generating facility added to Tiber Dam in 2005 mitigates these temperature modifications to some extent.

FISHING ACCESS

Access to the 138 miles of river is generally limited to seven bridge crossings, including: the Loma Bridge FAS; BLM's Sullivan Bridge, Pugsley Bridge, and Moffat Bridge Recreation Areas; 2 miles of public river frontage, one immediately upstream from Tiber Reservoir and the other downstream from the dam; and FWP's Marias River Wildlife Management Area (WMA), a 5,845 acre parcel that includes 16.9 river miles between its upper and lower boundaries. The WMA is located between Sullivan Bridge Road and I-15 in the reach above Tiber Reservoir. Although the river is usually navigable, the distances between bridges in the upper river and most portions of the lower river generally require more than a day's travel and are becoming a more popular recreational float. Many reaches of the Marias River receive only light fishing pressure primarily due to its remote and relatively inaccessible location. Most of the private landowners allow access with permission; however, the terrain bordering the river is fairly rugged making physical access difficult.

SPECIAL MANAGEMENT ISSUES

FWP continues to cooperate with the Blackfeet Fish and Wildlife Department on fisheries issues, particularly projects involving native westslope cutthroat trout on streams that traverse both reservation and adjacent public lands.

FWP will also continue to provide technical advice and work with the BOR to manage flows downstream from Tiber Dam to maintain a more natural hydrograph designed to benefit the native fish assemblage and migratory fishes in the Marias below the dam and in the Middle Missouri River downstream of the Marias River.

FISHERIES MANAGEMENT DIRECTION FOR THE MARIAS RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
So. Fork Two Medicine River – Headwaters to Blackfeet Reservation Boundary	15.5 miles	Rainbow trout	Wild	General	Manage as recreational fishery with consumptive harvest. Promote harvest.
		Westslope cutthroat trout hybrids	Wild	Conservation	Maintain population to reduce extinction risk. Manage to prevent additional hybridization.
		Mountain whitefish (N)	Wild	General	Maintain population within historic levels.
Habitat needs and activities: Maintain habitat and instream flows of 16 cfs. Evaluate sites for a major barrier.					
Birch Creek – Swift Reservoir to Highway 358	43 miles	Brook Trout	Wild	General	Maintain a recreational fishery with consumptive harvest.
Habitat needs and activities: Maintain habitat and instream flows of 64 cfs.					
South Fork Dupuyer Creek	8.8 miles	Brook trout	Wild	General	Manage as recreational fishery with consumptive harvest.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.
Habitat needs and activities: Maintain habitat and instream flows of 6 cfs.					
North Fork Dupuyer Creek	10.5 miles	Brook trout	Wild	General	Manage as recreational fishery with consumptive harvest.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extinction risk. Monitor to ensure hybrids do not ascend barrier at high magnitude flows.
Habitat needs and activities: Maintain habitat and instream flows of 12 cfs. Evaluate possible modification of barrier to maintain isolation at all flows.					
Dupuyer Creek	37.4 miles	Brook trout, Rainbow trout	Wild	General	Manage as recreational fishery with consumptive harvest.
		Mountain whitefish (N)	Wild	General	Maintain population within historic levels.
Habitat needs and activities: Maintain habitat and instream flows of 12 cfs.					

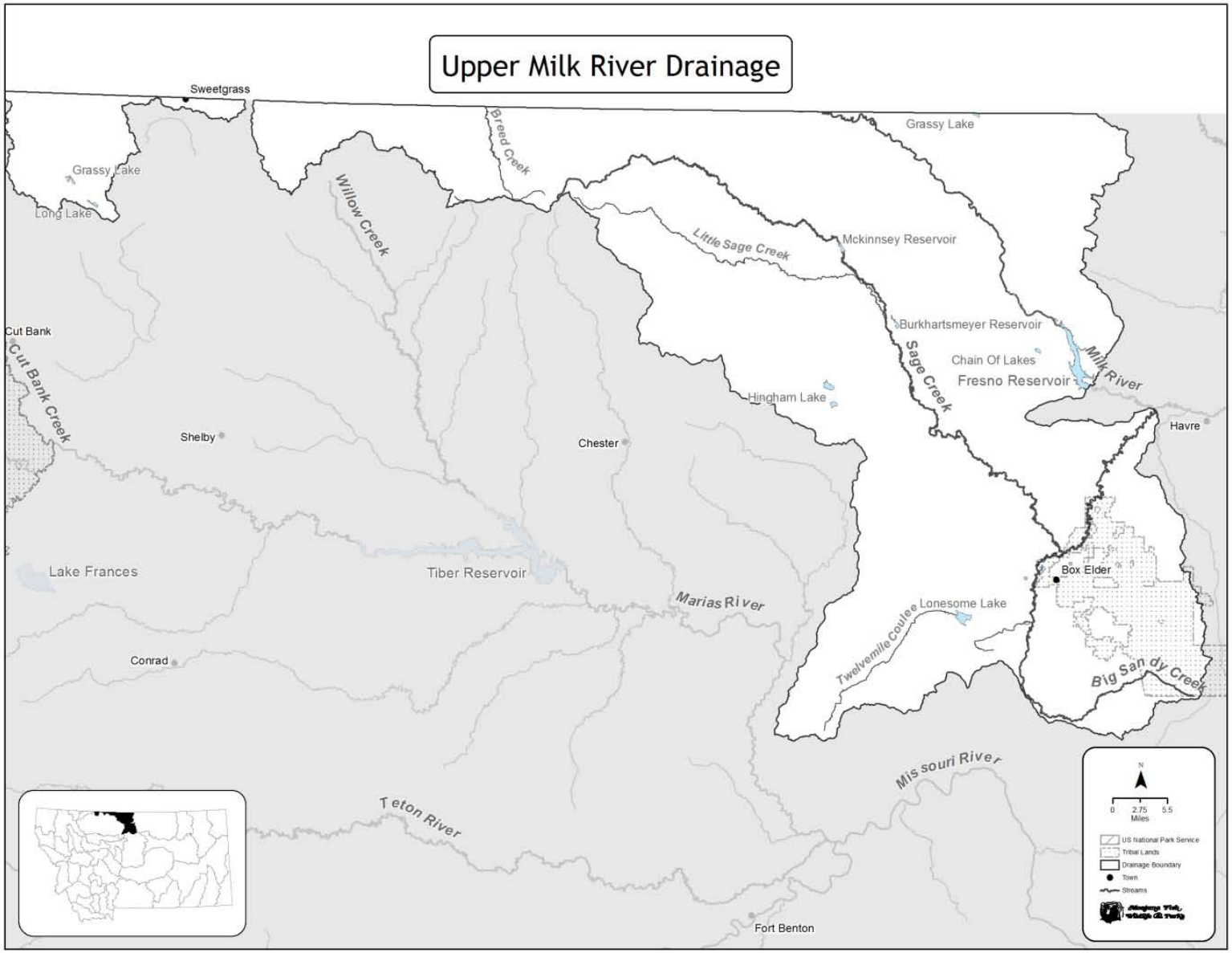
Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
South Badger Creek	10.9 miles	Brook trout, Rainbow trout	Wild	General	Manage as recreational fishery with consumptive harvest. Prevent competition or hybridization with WCT.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain population to reduce extinction risk. Monitor to ensure non-natives do not ascend barrier at high magnitude flows.
Habitat needs and activities: Maintain habitat and instream flows of 40 cfs.					
North Badger Creek	20 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain population to reduce extinction risk. Monitor to ensure non-natives are not illegally introduced.
Habitat needs and activities: Maintain habitat and instream flows of 14 cfs.					
Badger Creek-from Confluence of North and South Badger Creeks to Blackfeet Reservation Boundary	6.5 miles	Brook trout, Rainbow trout, Westslope cutthroat trout hybrids	Wild	General	Manage as recreational fishery with consumptive harvest.
Habitat needs and activities: Maintain habitat and instream flows of 60 cfs.					
Cut Bank Creek – From the Blackfeet	19 miles	Rainbow trout, Brown trout	Wild	General	Manage as recreational fishery with consumptive harvest.
Reservation Boundary to the Mouth		Mountain whitefish (N), Burbot (N)	Wild	General	Maintain population within historic levels.
Habitat needs and activities: Maintain habitat and instream flows of 75 cfs.					
Brook trout Streams in Two Medicine River Basin	240 miles	Brook trout	Wild	General	Manage for a consumptive harvest.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Swift Reservoir	450 acres	Rainbow trout	Wild	General	Marginal fishery with low fishing pressure and split jurisdiction with the Blackfeet Reservation. Maintain wild population for a recreational fishery with some consumptive harvest.
Marias River – Confluence of Two Medicine River & Cutbank Creek to the Headwaters of Tiber Reservoir	60 miles	Rainbow trout, Northern pike	Wild	General	Maintain a recreational fishery for consumptive harvest.
		Mountain whitefish (N)	Wild	General	Maintain populations within historic levels.
		Burbot (N)	Wild	General	Maintain populations within historic levels.
		Walleye	Wild	General	Maintain a recreational fishery for consumptive harvest and maintain access for adfluvial spawning populations within historic levels.
		Yellow perch	Wild	General	Maintain populations within historic levels with some consumptive harvest.
Habitat needs and activities: Maintain habitat and instream flows of 200 cfs.					
Tiber Reservoir (Lake Elwell)	14,842 acres	Walleye	Wild	General	Manage for a consumptive harvest with an opportunity for a trophy fish. Manage based on the biology of the fishery. Emphasize natural recruitment.
		Yellow Perch	Wild	General	Maintain population within historic levels and provide a major component of the forage base and contribute to recreational fishery.
		Cisco	Wild	General	Maintain population within historic levels and provide a major component of the forage base for large predatory species in Tiber.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Lake trout	Wild	General	Manage for a consumptive harvest.
		Northern pike	Wild	General	Manage for a consumptive harvest with the potential for a trophy fish.
		Burbot (N)	Wild	General	Manage for a consumptive harvest.
		Rainbow trout	Wild	General	Manage as an occasional species available for a consumptive harvest.
		Shovelnose sturgeon (N)	Wild	General	Maintain existing small population present. Consider potential for reestablishing a larger population.
Marias River – Tiber Dam to Highway 223 (Circle Bridge)	21 miles	Brown trout, Rainbow trout	Wild/ Hatchery	General	Maintain a recreational fishery with some consumptive harvest.
		Mountain whitefish (N)	Wild	General	Maintain population within historic levels.
		Burbot (N), Walleye, Northern pike	Wild	General	Maintain population within historic levels.
Habitat needs and activities: Maintain habitat and instream flows of 500 cfs.					
Lake Frances	3,618 acres	Walleye	Hatchery/ Wild	General	Manage for a consumptive harvest based on biology of the fishery. Continue to evaluate the contribution of biannual walleye plants and adjust if necessary to maintain a balance with the forage base.
		Northern pike, Burbot (N)	Wild	General	Manage for a consumptive harvest.
		Yellow perch	Wild	General	Maintain population within historic levels to provide a major component of the forage base and contribute to recreational fishery. Prohibit

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
					as a species in any fishing contest to optimize forage reproductive potential.
		Rainbow trout	Wild	General	Manage as an occasional species available for a consumptive harvest.
Habitat needs and activities: Manage forage base using the forage species currently present.					
Marias River – Highway 223 (Circle Bridge) to Mouth	57 miles	Sauger (N)	Wild	Restrictive Regulations	Maintain and enhance the population while maintaining a recreational fishery with some consumptive harvest.
		Mountain whitefish (N)	Wild	General	Maintain population within historic levels.
		Shovelnose sturgeon (N)	Wild	General	Maintain spawning run population within historic levels.
		Walleye, Channel catfish (N) Burbot (N), Brown trout	Wild	General	Maintain population within historic levels.
		Smallmouth bass	Wild	General	Maintain existing population levels if no observed impacts to native species.
Habitat needs and activities: Maintain habitat and instream flows of 560 cfs.					
Westslope Cutthroat Trout Genetically Unaltered Conservation Population Streams (Isolated Single Species Populations) (12 Streams)	41 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extinction risk.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Maintain or improve habitat and explore suitable sites for barriers or reducing fragmentation of WCT occupied habitat.					
Westslope Cutthroat Trout Genetically Altered Conservation Population Streams (11 Streams)	32.9 miles	Westslope cutthroat trout & hybrids (Mixed populations)	Wild	Conservation	Maintain or enhance populations. Allow harvest in robust populations.
Habitat needs and activities: Manage forage base using the forage species currently present.					


Upper Milk River Drainage
Sweetgrass
Grassy Lake
Long Lake
Willow Creek
Breed Creek
Grassy Lake
Little Sage Creek
Mckinnsey Reservoir
Burkhartsmeyer Reservoir
Chain Of Lakes
Fresno Reservoir
Milk River
Sage Creek
Hingham Lake
Cut Bank
Cut Bank Creek
Shelby
Chester
Havre
Lake Frances
Tiber Reservoir
Marias River
Box Elder
Lonesome Lake
Twelvemile Coulee
Big Sandy Creek
Conrad
Missouri River
Teton River
Fort Benton
N
0 2.75 5.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

UPPER MILK RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Upper Milk River flows approximately 105 miles through Alberta before re-entering Montana in Hill County, approximately 34 miles upstream of the Fresno Reservoir headwaters. This section of the Milk River consists of badlands, native grasses, sagebrush, and shrub/forest landscapes located primarily on federal lands. The Upper Milk area encompasses approximately 2,100 square miles. Sage Creek is one of two major tributaries to the Milk River, flowing from the headwaters near the Sweetgrass Hills and coursing through Liberty and Hill counties approximately 60 miles southeast to the junction with Big Sandy Creek. Stream-side vegetation consists mainly of native grasses, rose, and sagebrush. Surrounding lands are privately owned pasture and cultivated croplands. Big Sandy Creek begins in the Bear Paw Mountains and flows approximately 52 miles northeast through Choteau and Hill counties to its confluence with the Milk River downstream of Fresno Reservoir. Surrounding lands consist of timbered mountains, prairie pastures, and cultivated croplands located on private lands and the Rocky Boy Indian Reservation.

There are numerous reservoirs constructed on ephemeral streams located throughout this area. Most of these reservoirs are too shallow for fisheries and are primarily used for stock water and irrigation. The largest reservoirs are Fresno and Bailey, both of which receive high fishing pressure and other recreational use. Fresno is managed as an irrigation storage facility by the BOR and experiences considerable annual water level drawdowns.

FISHERIES MANAGEMENT

Fresno Reservoir is managed primarily for walleye. Management efforts are focused on working with the BOR on water-level management that benefits the resident fish community during critical spawning and rearing periods. Fresno Reservoir and the Milk River upstream of Fresno Dam supports a number of fish species including, walleye, yellow perch, lake whitefish, northern pike, black crappie, burbot, sauger, rainbow trout, stonecat, white sucker, longnose sucker, emerald shiner, spottail shiner, Rocky Mountain sculpin, fathead minnow, brook stickleback, lake chub, northern redbelly dace, longnose dace, western silvery minnow, and western silvery/plains minnow. Many of these species are also found in Sage and Big Sandy creeks. Species such as black bullhead, bluegill, smallmouth bass, largemouth bass, Iowa darter, and brassy minnow are found in the smaller impoundments and tributaries. Brook trout are found in the headwaters of Big Sandy Creek.

Fresno Reservoir has been stocked with 100,000 walleye fingerlings annually with little consideration given to wild walleye production, forage fish abundance and habitat quantity and quality. Stocking frequency and the number of walleye fingerlings planted are now being evaluated with the goal of improving walleye growth rates and size structure, while maintaining a favorable forage base. The forage base (yellow perch, black crappie, and spottail shiner) will be closely monitored with regard to current spawning success, water conditions, and predator densities.

Smaller reservoirs located throughout the area are managed for warm and cool water species diversity. Trapping and transport of warm-water species such as yellow perch, bluegill, black crappie, and fathead minnows will be implemented to establish new fisheries, promote kids fishing, and establish forage fish populations or to supplement existing game fish populations. Hatchery-reared rainbow trout, brook trout, and largemouth bass will continue to be stocked into those ponds with sufficient water depth and good overwinter survival. Ponds and reservoirs will be re-stocked immediately following severe drought events or winterkills if favorable habitat conditions exist. Windmill aeration systems will be maintained on those ponds with marginal depths and low winter dissolved oxygen levels.

Very little information has been obtained identifying species composition, densities, specific interactions, and habitat use of native and non-native fishes within the Milk River above Fresno Reservoir. Therefore, development and implementation of a standardized sampling program targeting multiple habitats is currently being developed.

Angling opportunities occur year-round, with anglers targeting the rivers and streams during the spring, shifting to the ponds and reservoirs from late spring through the winter months. Shore, boat, and ice fishing opportunities exist throughout the area, with anglers using a variety of methods to catch multiple species. Anglers need to be aware of the no live bait fish restriction on Fresno Reservoir and the Milk River above Fresno Reservoir.

HABITAT

Flows on the Upper Milk River are highly variable and can range from intermittent pools (no flow) to flows exceeding 5,000 cfs depending on the time of year and precipitation. Flows are augmented annually through the transbasin diversion from the St. Mary River and canal system with up to 650 cfs during the irrigation season (April-September). Fresno Reservoir is a mainstem irrigation storage facility located on the Milk River with annual water fluctuations of more than 21 feet. Extreme reservoir drawdowns have negative impacts to the fishery and can result in poor spawning conditions, poor rearing habitat, poor overwinter water conditions, and increased fish entrainment downstream. Although uncommon, there have been years in which recreationists were unable to launch boats due to low reservoir water conditions.

Fish passage issues exist in the Upper Milk drainage, but little work has been done to identify these and determine passage enhancement opportunities. Plans are being developed to identify areas of impaired passage and implement safe water crossings which emphasize fish passage and habitat connectivity. Recommending best management practices for improving bank stabilization and riparian habitats, while opposing land use activities that further degrade habitat and water quality will be emphasized.

Riparian habitats associated with smaller reservoirs vary depending on rotational grazing plans and fencing. Water quality varies as well based on surrounding land use practices, water depth, and seasonal climate variables. Efforts are underway to work with land management agencies and private landowners to improve riparian health through a variety of treatments.

FISHING ACCESS

The Upper Milk River is surrounded by federal lands, but access to those lands is limited. One access site is off a county road approximately 10 miles upstream of the Fresno Reservoir

headwaters. Access to Fresno Reservoir is good (primarily BOR ownership), with campgrounds provided and managed by the Fresno Chapter of Walleyes Unlimited, and primitive camping available throughout the lower half of the reservoir. There are two concrete boat ramps located near the dam and in Kremlin Bay.

Bailey Reservoir, a popular youth fishery and important regional fishery is the only State Fishing Access Site located in this area. Amenities at Bailey Reservoir include a fishing pier, pavilion, and boat ramp.

The FWP Region 6 pond guide will continue to be updated and distributed to anglers to increase awareness on local pond opportunities. Access and opportunity will continue to be a major emphasis throughout the area.

SPECIAL MANAGEMENT ISSUES

Fishing Tournaments

Currently, one open water walleye tournament and one ice fishing tournament are held on Fresno Reservoir annually. Tournament dates must be finalized with the BOR prior to completion of the permit application issued by MFWP. Tournaments will be reviewed on an individual basis. Evaluation of proposed tournaments will include potential biological and social impacts. Each tournament undergoes a 30-day public review and comment period. Tournament directors will be required to report post-tournament catch-rate information in a standardized format.

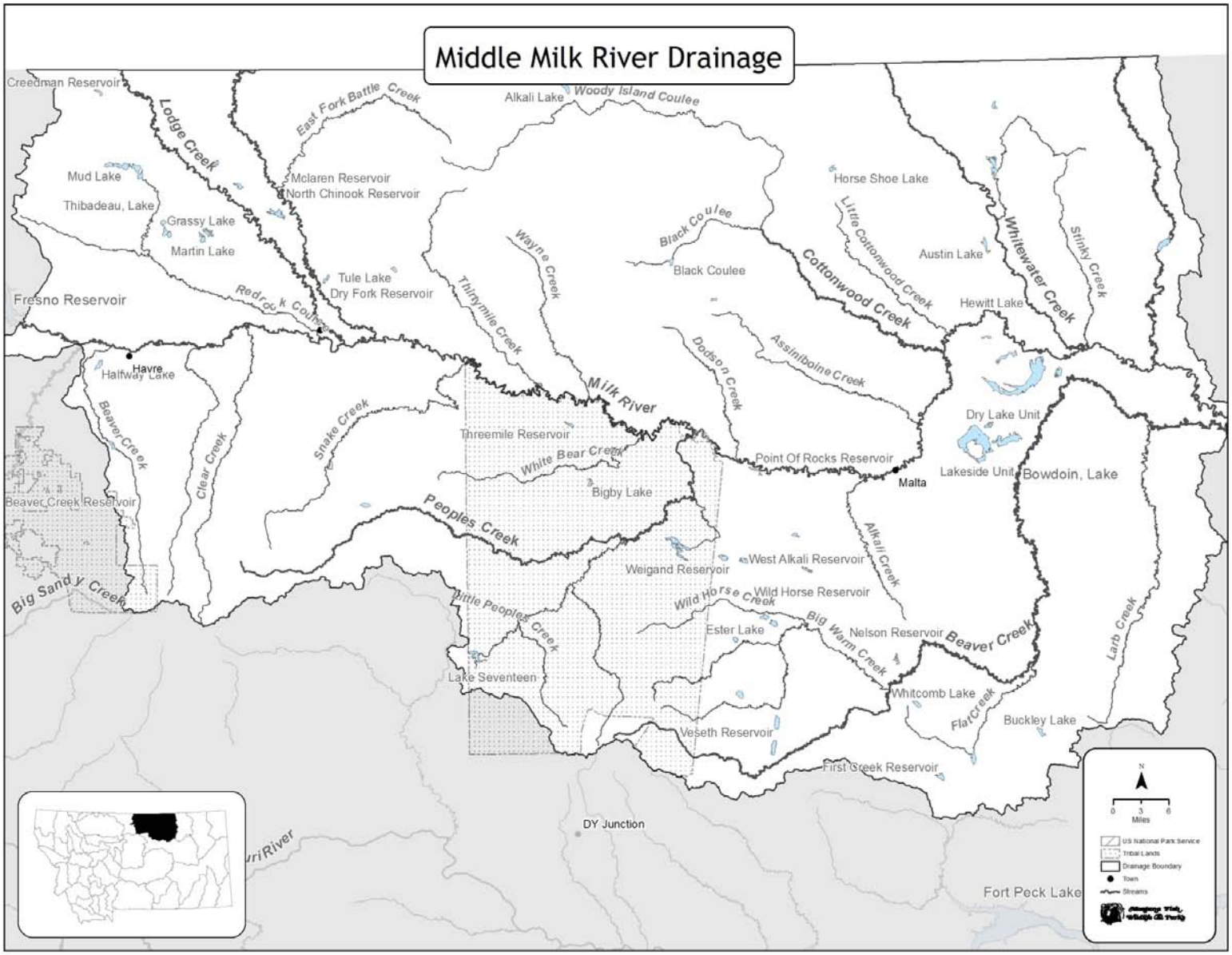
Milk River and Fresno Reservoir Water Management

The St. Mary canal and existing infrastructure is approaching 100 years of age and is in need of major repairs. The St. Mary's Working Group is working on a plan to update and repair the existing infrastructure to ensure supplemental water continues to provide irrigation water to agricultural producers throughout the Milk River watershed. The BOR recently completed a transbasin water analysis study that identified potential climate change related impacts to the watershed. Anticipated impacts include highly variable water supplies that have the potential to limit all water uses over the next 40-year time period.

FISHERIES MANAGEMENT DIRECTION FOR UPPER MILK RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Milk River - Canadian border to Fresno Reservoir headwaters	34 miles	Walleye, Northern pike	Wild	General	Develop and implement a standardized sampling program.
		Sauger (N), Burbot (N)	Wild	General/Conservation	Develop and implement a standardized sampling program. Work with Alberta Sustainable Resource Development to collect sauger genetics in the upper Milk River.
		Native non-game fishes (N)	Wild	Conservation	Develop and implement a standardized sampling program.
Habitat needs and activities: Identify current and historic habitat limitations as it pertains to winter flows, fish production, and rearing habitat. Work with the BOR, the local conservation district, and landowners to address any habitat issue identified.					
Fresno Reservoir	5,700 acres	Walleye, Northern pike, Yellow perch, Black crappie, Lake whitefish	Wild/Hatchery	General/Put-Grow-Take	Continue to evaluate and manage the fish community in regards to reservoir water management. Implement walleye and yellow perch stocking strategies based on water management and current population densities.
		Sauger (N), Burbot (N)	Wild	General/Conservation	Monitor populations to detect changes in species composition and abundance.
Habitat needs and activities: Work with Bureau of Reclamation and water users to optimize water management in Fresno Reservoir to benefit the resident fisheries. Optimal water management should target steady to rising reservoir water levels during critical spawning periods (mid April-mid June). It should also target favorable overwinter pool elevations that submerge rock substrates and increase young of year rearing habitat.					
Big Sandy Creek	52 miles	Walleye, Northern pike, Yellow perch, Black bullhead	Wild	General	Begin to understand fish assemblage and population size of game fishes.
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Sage Creek	60 miles	Northern pike, Yellow perch	Wild	General	Begin to understand fish assemblage and population size of game fishes.
		Native non-game fishes	Wild	Conservation	Protect habitat and provide passage where applicable.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Bailey Reservoir	70 acres	Northern pike, Yellow perch, Black crappie	Wild	General	
		Walleye	Hatchery	Put-Grow-Take	Stock 10,000 walleye fingerlings on alternate years.
Habitat needs and activities: Seek opportunities to increase reservoir habitat with use of artificial structures.					


Middle Milk River Drainage
Creedman Reservoir
Lodge Creek
East Fork Battle Creek
Alkali Lake
Woody Island Coulee
Mud Lake
Thibadeau, Lake
Mclaren Reservoir
North Chinook Reservoir
Grassy Lake
Martin Lake
Tule Lake
Dry Fork Reservoir
Fresno Reservoir
Redrock Coulee
Wayne Creek
Thirtymile Creek
Black Coulee
Black Coulee
Horse Shoe Lake
Little Cottonwood Creek
Cottonwood Creek
Austin Lake
Whitewater Creek
Stinky Creek
Hewitt Lake
Dodson Creek
Assiniboine Creek
Havre
Halfway Lake
Milk River
Beaver Creek
Clear Creek
Snake Creek
Threemile Reservoir
White Bear Creek
Point Of Rocks Reservoir
Malta
Dry Lake Unit
Lakeside Unit
Bowdoin, Lake
Beaver Creek Reservoir
Bigby Lake
Peoples Creek
Alkali Creek
Weigand Reservoir
West Alkali Reservoir
Wild Horse Reservoir
Wild Horse Creek
Big Sandy Creek
Little Peoples Creek
Ester Lake
Big Warm Creek
Nelson Reservoir
Beaver Creek
Larb Creek
Lake Seventeen
Whitcomb Lake
Flat Creek
Buckley Lake
Veseth Reservoir
First Creek Reservoir
DY Junction
Fort Peck Lake
N
0 3 6
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

MIDDLE MILK RIVER DRAINAGE

PHYSICAL DESCRIPTION

This drainage is located in north central Montana in Hill, Blaine, and Phillips counties and encompasses approximately 8,700 square miles. The landscape is diverse with cottonwood galleries and irrigated crop and hay lands along the Milk River and major tributaries, dry-land agriculture and rangeland throughout the area, and two island mountain ranges (Bear Paws and Little Rockies). Landownership in this area consists of federal, state, and private lands, including the Fort Belknap Reservation and a portion of the Rocky Boy Reservation. In this drainage, the Milk River flows for 302 miles from Fresno Reservoir downstream to Hinsdale. There are several major tributaries to the Milk River located in this reach. Lodge, Battle, and Frenchman Creeks all originate in Alberta and Saskatchewan, Canada; whereas Beaver (Hill), Clear, Peoples, and Little Boxelder Creeks originate in the Bear Paw Mountains and Beaver Creek (Phillips) originates in the Little Rocky Mountains.

There are numerous reservoirs located throughout this area. Most of these reservoirs are generally too shallow to support perennial fisheries and are primarily used for stock and irrigation. The largest reservoirs by surface acreage are Nelson, Dry Fork, Beaver Creek, Anita, and Ester Reservoirs which receive high numbers of visitors for fishing and other recreational activities. Nelson Reservoir is managed as an irrigation storage facility by the BOR and can experience considerable drawdowns during prolonged drought cycles.

FISHERIES MANAGEMENT

This area is home to a number of fish species including, walleye, yellow perch, northern pike, black crappie, burbot, sauger, lake whitefish, goldeye, shorthead redhorse, smallmouth buffalo, bigmouth buffalo, black bullhead, bluegill, pumpkinseed, green sunfish, smallmouth bass, channel catfish, largemouth bass, Iowa darter, brassy minnow, stonecat, white sucker, longnose sucker, common carp, emerald shiner, spottail shiner, fathead minnow, brook stickleback, lake chub, northern redbelly dace, longnose dace, western silvery minnow, and western silvery/plains minnow. Species such as rainbow trout, brown trout, brook trout, and mountain sucker are found in the headwaters of Clear Creek and Beaver Creek. Brook trout are also found in some of the headwater streams located in the Little Rockies.

Nelson Reservoir is managed primarily for walleye but also contains a good northern pike and yellow perch population. This reservoir will continue to be managed as a multi-species fishery with an emphasis on walleye management that promotes healthy walleye growth and adult densities.

Very little information has been obtained identifying the species composition, densities, interactions, and habitat use of native and non-native fishes within the Middle Milk River. Therefore, development and implementation of a standardized sampling program targeting multiple habitats with maximum efficiency will aid in addressing some of these questions.

Smaller reservoirs located throughout the area are managed for diversity and monitored every one to five years, based on angler use. Trap and transport of warm-water species such as yellow

perch, bluegill, black crappie, and fathead minnows is used to establish new fisheries, promote kids fishing, establish a forage base, or to supplement existing populations. Hatchery reared rainbow trout and largemouth bass are stocked into those ponds that have traditionally received them and exhibit good overwinter water conditions. Ponds and reservoirs will be re-stocked following severe drought events or winterkills. Windmill aeration systems are maintained on those ponds with marginal depths and low winter dissolved oxygen levels.

Angling opportunities occur year-round with anglers typically targeting the rivers and streams during the spring, and shifting to ponds and reservoirs from late spring through winter. Shore, boat, and ice fishing opportunities exist throughout the area with anglers using a variety of methods to catch multiple species.

HABITAT

The Middle Milk is one of the most impacted sections of river in Montana. There are eight in-stream dams/diversions used to divert water for irrigation and municipal use that are barriers to fish passage. Fish passage issues also exist in the larger tributaries as with a dam located on Frenchman Creek (Frenchman Dam). There are plans to identify those areas that restrict fish passage and promote stream crossing designs that provide aquatic connectivity. Implementing best management practices for improving bank stabilization and riparian habitats while opposing land use activities that further degrade habitat and water quality is emphasized as a general management strategy.

Nelson Reservoir is an off-stream storage facility that draws water from the Milk River and has water levels that are relatively stable, except duing extreme drought, compared to other reservoirs within the area. Ensuring stable or rising reservoir levels during critical spawning and rearing periods allows this fishery to maintain balanced predator-prey densities and good growth rates.

Riparian habitats associated with smaller reservoirs vary depending on current rotational grazing plans and fencing. Water quality also varies based on surrounding land practices, depth, and seasonal climate. Working with federal agencies (e.g., BLM) to implement riparian fencing and off-site watering projects for livestock improves riparian habitats and increases the aesthetic values surrounding these small reservoirs.

FISHING ACCESS

Public access to the Middle Milk River is limited due to the predominance of private land along the river. There are three FWP Fishing Access Sites (Fresno Tailwater, Alkali Creek, and Bjornberg Bridge) and a number of bridges that anglers can use to access the Milk River and streams located throughout the area. Access to Nelson Reservoir is good with much of the adjacent land owned and managed by the BOR. Camping areas and two concrete boat ramps are located near the dam and east shoreline of the reservoir. There are also FASs located at Bear Paw Lake, Cole Ponds, and Faber Reservoir, giving anglers a diverse fishing opportunity on some smaller bodies of water. Local pond opportunities on state, federal, and private lands is also available throughout the area, and information can be found in the Region 6 pond guide. Access and opportunity will continue to be a major emphasis throughout the area.

SPECIAL MANAGEMENT ISSUES

Fishing Tournaments

Currently, one ice fishing tournament are held on Nelson Reservoir annually. Tournament dates must be finalized with the BOR prior to completion of the permit application issued by MFWP. Tournaments will be reviewed on an individual basis. Evaluation of proposed tournaments will include potential biological and social impacts. Each tournament undergoes a 30-day public review and comment period. Tournament directors will be required to report post-tournament catch-rate information in a standardized format.

Milk River and Nelson Reservoir Water Management

The St. Mary canal and existing infrastructure is approaching 100 years of age and is in need of major repairs. The St. Mary's Working Group is working on a plan to update and repair the existing infrastructure to ensure supplemental water continues to provide irrigation water to agricultural producers throughout the Milk River watershed. The BOR recently completed a transbasin water analysis study that identified potential climate change related impacts to the watershed. Anticipated impacts include highly variable water supplies that have the potential to limit all water uses over the next 40 year time period.

FISHERIES MANAGEMENT DIRECTION FOR MIDDLE MILK RIVER DRAINAGE

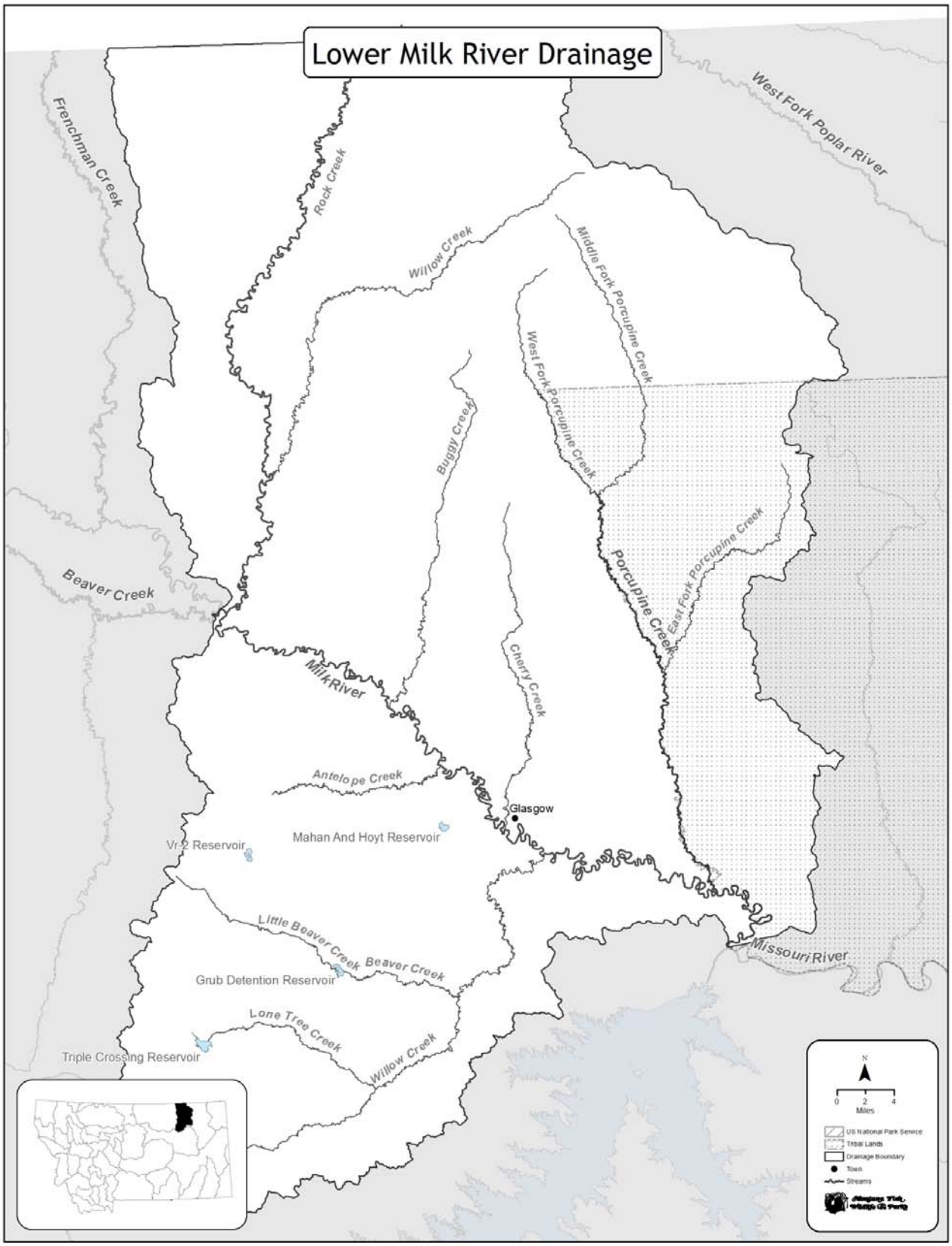
Water	Miles/Acres	Species	Recruitment Source	Management Type	Management Direction
Milk River - Fresno Reservoir tailwaters to Hinsdale	302 miles	Walleye, Northern pike, Yellow perch, Black crappie, Lake whitefish, Sauger (N), Channel catfish (N), Burbot (N)	Wild	General	Develop and implement a standardized sampling program to monitor sport fish populations. Better understand entrainment losses of all fishes through diversion canals and intake structures.
		Native non-game fishes (N)	Wild	Conservation	Monitor populations to detect changes in species composition and abundance.
		Rainbow trout	Hatchery	Put-Grow-Take	Continue to stock 4,000 rainbow trout into the Fresno Tailwaters annually.
Habitat needs and activities: Work with local, state, and federal agencies along with landowners to implement best management practices that improve or maintain natural riverine habitats.					
Beaver Creek Section 03 and 04- Bear Paw Lake headwaters to East Fork Dam tailwaters	12 miles	Brook trout, Rainbow trout	Wild	General	Manage for self sustaining brook trout fishery. Develop and implement a standardized sampling program to understand fish assemblage and population size.
Habitat needs and activities: Work with Beaver Creek County Park to implement best management practices that improve or maintain natural riverine and riparian habitats.					
Beaver Creek Section 02- Beaver Creek Reservoir headwaters to Bear Paw Lake tailwaters.	8 miles	Brown trout	Hatchery	Put-Grow-Take	Stock 2,000 brown trout annually for put and take trout fishery.
		Rainbow trout, Brook trout, Walleye, Northern pike,	Wild	General	Develop and implement a standardized sampling program to understand fish assemblage and population size.

Water	Miles/Acres	Species	Recruitment Source	Management Type	Management Direction
		Yellow perch, Smallmouth bass			
Habitat needs and activities: Work with Beaver Creek County Parks to implement best management practices that improve or maintain natural riverine and riparian habitats.					
Bear Paw Lake	45 acres	Rainbow trout	Hatchery	Put-Grow-Take	Stock 20,000 rainbow trout annually for put and take trout fishery.
		Brook trout, Smallmouth bass	Wild/Hatchery	General/Restrictive Regulations	Consider increasing daily combined trout limit from 3 to 5 fish. Manage for self-sustaining smallmouth bass population.
		Walleye	Hatchery	Put-Grow-Take	Stock walleye fingerlings as biological control of white sucker on an as-needed basis.
Beaver Creek Section 01- Confluence of Milk River to Beaver Creek Reservoir tailwaters.	22 miles	Brown trout	Hatchery	Put-Grow-Take	Stock 3,000 brown trout annually for put and take trout fishery.
		Rainbow trout, Brook trout, Walleye, Northern Pike, Yellow Perch, Smallmouth bass	Wild	General	Develop and implement a standardized sampling program to understand fish assemblage and population size.
Habitat needs and activities: Work with local, state, and federal agencies along with landowners to implement best management practices that improve or maintain natural riverine habitats.					
Beaver Creek Reservoir	160 acres	Rainbow trout, Walleye	Hatchery	Put-Grow-Take/ Restrictive Regulations	Stock 50,000 rainbow trout annually for put and take trout fishery. Consider increasing daily combined trout limit from 3 to 5 fish. Evaluate current walleye stocking programs success. Implement a walleye stocking strategy that optimizes stocked walleye recruitment and relative abundance while maintain a good forage base.

Water	Miles/Acres	Species	Recruitment Source	Management Type	Management Direction
		Northern pike, Yellow perch, Smallmouth bass, Brook trout	Wild	General	Continue to monitor these populations as well as evaluate the biological and social impacts regarding a black crappie introduction into the reservoir.
Habitat needs and activities: MFWP has requested that reservoir water levels remain stable to slightly increasing during the spring spawning period (April-May).					
Clear Creek	40 miles	Walleye, Northern pike, Yellow perch, Sauger (N)	Wild	General	Better understand fish assemblage and population size of game fishes.
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
		Brook trout	Wild	General	Manage for self-sustaining brook trout fishery.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Lodge Creek, Battle Creek	62 miles, 70 miles	Walleye, Northern pike, Black bullhead, Sauger (N), Yellow Perch	Wild	General	Better understand fish assemblage and population size of game fishes.
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to install safe water crossings which emphasize fish passage and water connectivity.					
Peoples Creek	70 miles	Walleye, Northern pike, Black bullhead, Yellow perch	Wild	General	Better understand fish assemblage and population size of game fishes.

Water	Miles/Acres	Species	Recruitment Source	Management Type	Management Direction
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
		Brook trout	Wild	General	Manage for self-sustaining brook trout fishery.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Dry Fork Reservoir	350 acres	Walleye	Hatchery	Put-Grow-Take	Stock 10,000 walleye fingerlings annually.
		Northern pike, Yellow perch, Black crappie	Wild	General	Maintain a quality fishing experience for all species. Continue to monitor the population.
Habitat needs and activities: Look to minimize irrigation impacts on pool elevations.					
Ross Reservoir	6 acres	Yellowstone cutthroat trout	Hatchery	Put-Grow-Take	Maintain current harvest opportunity
Faber Reservoir	38 acres	Rainbow trout	Hatchery	Put-Grow-Take	Manage for put and take rainbow trout fishery. Get feedback from anglers on possibly introducing black crappie.
Brookie Pond	4 acres	Brook trout	Hatchery	Put-Grow-Take	Maintain current harvest opportunity
Habitat needs and activities: Maintain windmill aerator.					
Frenchman Creek	78 miles	Walleye, Northern pike, Black bullhead, Yellow perch	Wild	General	Better understand fish assemblage and population size of game fishes.
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Beaver Creek (Phillips County)	78 miles	Walleye, Northern pike, Black bullhead, Yellow perch	Wild	General	Better understand fish assemblage and population size of game fishes.

Water	Miles/Acres	Species	Recruitment Source	Management Type	Management Direction
		Native non-game fishes (N)	Wild	Conservation	Protect habitat and provide passage where applicable.
		Brook trout	Wild	General	Manage for self-sustaining brook trout fishery.
Habitat needs and activities: Identify habitat issues and work closely with local conservation districts, county road crews, and landowners to implement safe water crossings which emphasis fish passage and water connectivity.					
Nelson Reservoir	4,331 Acres	Walleye, Northern pike, Yellow perch, Black crappie, Lake whitefish, Smallmouth bass, Channel catfish (N)	Wild/Hatchery	General/Put-Grow-Take	Evaluate current cost/benefits of our walleye stocking program as it relates to walleye abundance, growth, and condition. Manage for sustainable walleye, northern pike, and yellow perch fishery year-round. Evaluate the rising smallmouth bass densities and its effects on the existing fish community.
Trout Ponds- Located throughout Hill, Blaine, and Phillips Counties	Various	Rainbow trout, Brook trout	Hatchery	Put-Grow-Take	Monitor water conditions and impacts from winterkill. Stock trout based on current 6-year stocking plan.
Habitat needs and activities: Work with Bureau of Land Management and landowners to increase riparian habitats and aesthetic landscapes surrounding the ponds. Maintain windmill aeration systems on ponds with marginal depths.					
Warm water Reservoirs and Ponds- Located throughout Hill, Blaine, and Phillips Counties	Various	Largemouth bass, Northern pike, Walleye, Smallmouth bass, Channel catfish (N), Black crappie, Yellow perch, Bluegill	Wild/Hatchery/ Transfer	General/ Put-Grow-Take	Manage as self-sustaining fisheries. Supplement populations with hatchery stocking and wild fish transfers as needed. Monitor water conditions and impacts from winterkill.
Habitat needs and activities: Work with Bureau of Land Management and landowners to increase riparian habitats and aesthetic landscapes surrounding the ponds. Maintain windmill aeration systems on ponds with marginal depths.					


Lower Milk River Drainage
Frenchman Creek
Rock Creek
West Fork Poplar River
Willow Creek
Middle Fork Porcupine Creek
West Fork Porcupine Creek
Buggy Creek
Beaver Creek
Porcupine Creek
East Fork Porcupine Creek
Cherry Creek
Milk River
Antelope Creek
Glasgow
Mahan And Hoyt Reservoir
Vr-2 Reservoir
Little Beaver Creek
Beaver Creek
Missouri River
Grub Detention Reservoir
Lone Tree Creek
Willow Creek
Triple Crossing Reservoir
N
0 2 4
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

LOWER MILK RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Lower Milk River drainage covers approximately 2,644 square miles, including the Milk River from Hinsdale downstream to its confluence with the Missouri River. The vast majority of the district is situated within Valley County, with the exception of the northwest most portion which lies within Phillips County. Significant tributaries include Rock Creek from the north and Willow creek from the south. Although the Milk River bottoms are mostly in private ownership, areas to the north and south include large tracks of BLM land as well as private lands. Along the Milk River irrigated croplands dominate the landscape with intact cottonwood galleries intermixed throughout. The areas to the north are a mix of dry land grain farming and native grass communities. Areas to the south also have dry land grain farming and native sagebrush habitats.

FISHERIES MANAGEMENT

The Milk River from Hinsdale to Vandalia Dam is greatly influenced by the complete fish barrier that Vandalia Dam has created. The richness of native fishes is greatly reduced when compared to sections downstream of Vandalia (Missouri River influence). One native species (channel catfish) and two introduced species (walleye and northern pike) dominate the fishery in this section. Other introduced game fishes including yellow perch, black crappie, bluegill and smallmouth bass are also found in this section. Although not considered a lake or a reservoir, Vandalia Dam backs water up to Hinsdale and boat fishing and water-based recreation is popular.

The fish populations of the Milk River downstream of Vandalia Dam are interconnected to the Missouri River, with high native and nonnative species richness. The abundance of both native and introduced fish can greatly vary on a seasonal or yearly basis depending on the river's discharge and the number of fish migrating upstream from the Missouri River. Game fish that occur in this section include channel catfish, sauger, walleye, shovelnose sturgeon, northern pike, burbot, lake whitefish, smallmouth bass and paddlefish. Non-game fish include (but are likely not limited to) pallid sturgeon, bigmouth and smallmouth buffalo, river carpsucker, blue sucker, white and longnose sucker, shorthead redhorse, freshwater drum, goldeye, stonecat, black bullhead, flathead chub, sicklefin chub, sturgeon chub, sand shiner, emerald shiner, spottail shiner, fathead minnow, brassy minnow, western silvery minnow, plains minnow and common carp.

The lower Milk River is a very important tributary to the Missouri River for fish recruitment. Studies have found that when the Milk River is flowing during the spring and early summer, countless fish of several species are produced and drift into the Missouri River. Paddlefish production in the lower Milk River occurs in years that the Milk has spring and early summer flows. In addition, blue suckers are known to enter the Milk River when flows are near 1,000 cfs and spawn, while in years where relatively little flow occurs blue suckers don't even enter the river. Furthermore, higher flows are required to scour silt from the bottom of the river into suspension and expose the many gravel bars--allowing fish like sauger and paddlefish to attach

their eggs. The importance of the Milk River is just becoming known and with the recent migrations of pallid sturgeon into the river, further study is warranted.

Fishing regulations in the lower Milk River are similar to that of the rest of the Eastern District, with the exception of paddlefish. Although paddlefish use the lower Milk in the spring and early summer, no fishing is allowed. This is because the size of the population and the amount of fishing pressure it can withstand is not fully understood. Furthermore, there is very limited public access on this portion of the river and spawning is sporadic and dependent on river discharge. Limited access not only makes fishing difficult, but limits effective law enforcement.

Rock Creek is a relatively large tributary that enters the Milk River northwest of Hinsdale. Although the majority of angling likely occurs at its confluence with the Milk River, Rock Creek it has at least 14 species within the drainage, 12 of which are native species.

Several prairie ponds that provide public access are stocked with game fishes to provide fishing opportunities. The deeper ponds have been stocked with game fish that are meant to be self-sustaining, such as northern pike, yellow perch, white or black crappie, and largemouth bass. Shallower ponds that have a tendency to winter kill are often stocked with hatchery produced rainbow trout that are stocked either annually or biannually.

HABITAT

The upper section of the Milk River from Hinsdale to Vandalia Dam is shallower and has faster moving water, while the lower section consists of relatively deep slow moving water, because of the influence of Vandalia Dam. The upper section has intact cottonwood galleries with intermixed agricultural fields to the rivers banks.

The section downstream of Vandalia dam is very sinuous with a cottonwood gallery lining the majority of river with patches of agriculture adjacent to the river banks. Throughout most of the year the rivers bed is laden with silt substrate, but when the river flows increase in the spring, those sediments are put into suspension and gravel bars are exposed.

During the flooding of 2011 it was apparent how important an intact riparian zone is on the lower Milk River. Bank sloughing occurred at accelerated rates on lands butting up to agricultural field, with several areas witnessing severe erosion. Conversely, soils with intact riparian vegetation stayed relatively intact.

The largest single factor limiting the lower Milk River is the availability of water during the spring and early summer period. During years of drought, the lower Milk River is often stagnant, with flows approaching zero. From past research there is a good understanding of the relationship between spring and early summer flows and production of several species of native fishes, including game fishes like sauger and paddlefish. During wet years when the Milk River flows for extended periods, several species benefit by running up into the river from the Missouri River and spawning. The duration of flow is critical since once a fish has laid its eggs flows are needed to keep those eggs oxygenated. If flows cease when eggs are incubating, silt will fall back out of the water column and can suffocate the eggs.

FISHING ACCESS

The majority of the lower Milk River flows through privately owned lands. However, some public lands do occur, particularly in the town of Hinsdale and at Vandalia Dam. From Vandalia Dam to its mouth, public access is mostly limited to county bridges. Addressing the lack of public access to the lower Milk River is a priority for FWP.

The prairie ponds within the district occur on a mix of private and public land. Private ponds stocked by FWP are accessible to the public by gaining permission from landowners. A region-wide pond booklet was published in 2011 that provides recreationists with a guide to all ponds managed by FWP in Region 6. This booklet will be updated every two years.

SPECIAL MANAGEMENT ISSUES

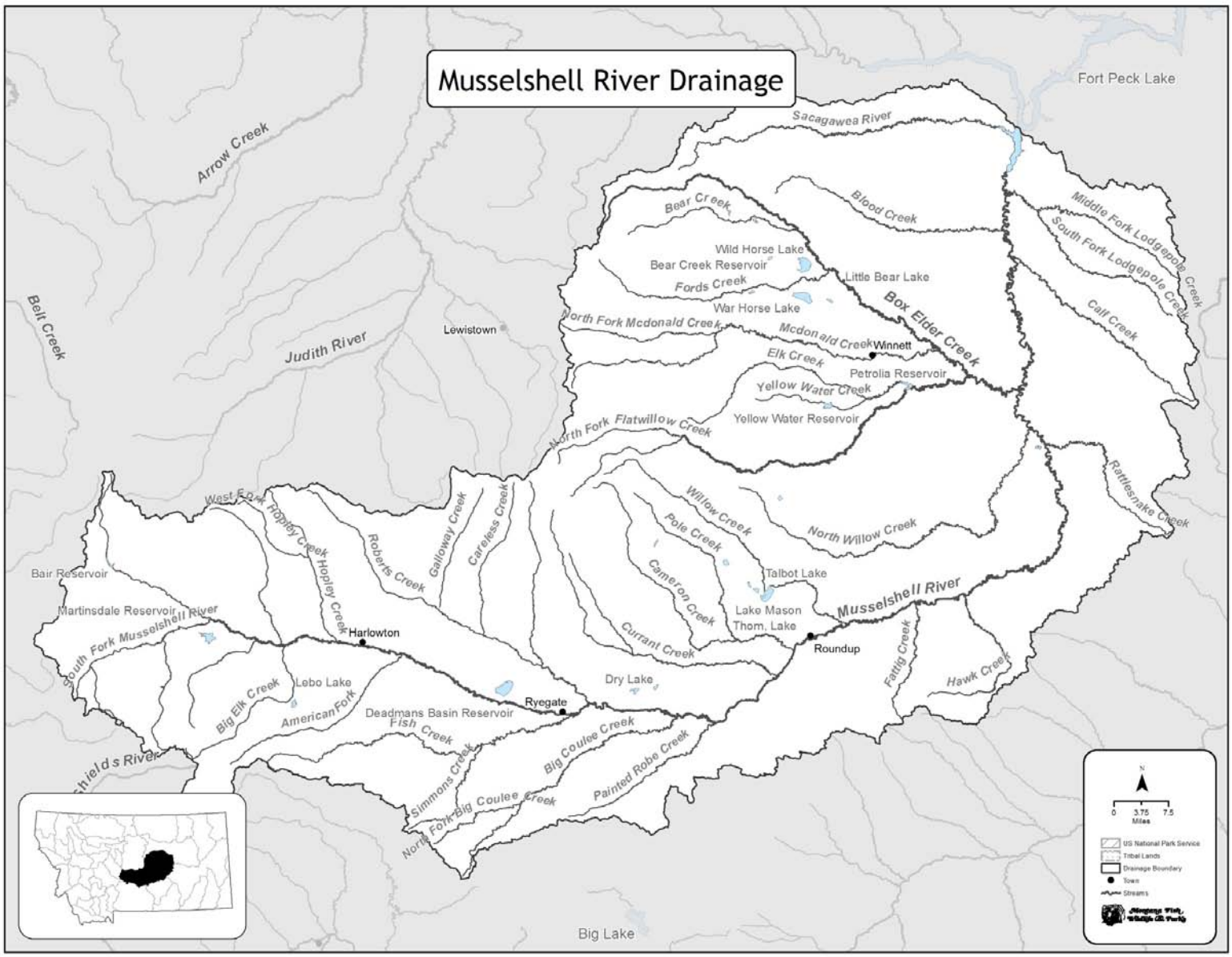
During 2010 and 2011, both wild adult and hatchery-reared pallid sturgeon migrated into the lower Milk River from the Missouri River. Although the significance of this in terms of helping with pallid sturgeon recovery is unclear, it is apparent that future studies are warranted.

The Milk River greatly influences the temperature and suspended sediment load of the Missouri River during high flows, due to the fact that low volumes of cold, clear water are typically released out of the reservoir at these times. These physical changes in the Missouri River were observed during 2010 when the Milk River had flows of approximately 6,000 cfs for two extended periods during the spring into the early summer. These flows not only produced fish like paddlefish and sauger in the Milk River, but also contributed to the largest year class of shovelnose sturgeon produced in the Missouri River in recent history. Similarly, during the historic water year of 2011, at least five adult wild pallid sturgeon migrated up the Milk River. This was the second year in a row that adult pallid sturgeon were in the Milk River and during 2011 they were present in the spawning season. Although at this point, the Milk River is not believed to be a spawning river for pallid sturgeon, its effects on the physical nature of the Missouri River are believed to be very important. Therefore, water management in the Milk River could be a reasonable alternative for managing the restoration of pallid sturgeon in the Missouri River.

FISHERIES MANAGEMENT DIRECTION – LOWER MILK RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Milk River (Hinsdale to Vandalia Dam)	16 miles	Channel catfish (N), Sauger (N), Walleye, Northern pike	Wild	General	Monitor populations for sport fishing. Continue to better understand channel catfish population dynamics.
		Native non-game fishes (N)	Wild	Conservation	Monitor populations to detect changes in species composition and abundance.
Milk River (Vandalia Dam to Missouri River)	117 miles	Channel catfish (N), Sauger (N),	Wild	Conservation	Monitor populations to be certain that over exploitation does not occur. Maintain habitat for all life stages. Study channel catfish population dynamics. Better understand spawning requirements of sauger.
		Paddlefish (N)	Wild	Restrictive Regulations	Better understand spawning requirements of paddlefish.
		Northern Pike, Walleye, Smallmouth bass, Yellow perch, Black crappie	Wild	General	Low level effort to monitor populations through native game fish surveys. Allow sustainable harvest.
		Native non-game fishes (N)	Wild	Conservation	Monitor populations to detect changes in species composition and abundance. Better understand the relative contribution of Milk River fishes to the Missouri River
Rock Creek	93 miles	Channel catfish (N), Sauger (N)	Wild	General	Maintain numbers. Inventory habitat issues, such as fish passage barriers and unscreened diversions.
		Native non-game fishes (N)	Wild	Conservation	Protect habitat for native fishes. Provide fish passage at stream crossings.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Prairie Ponds	Various	Yellow perch, Largemouth bass, Northern pike	Wild/ Transfer	General	Continue to monitor these populations and stock fish when necessary. Look for opportunities to increase the quality of habitat by increasing the depth of reservoirs, building new reservoirs, etc.
		Rainbow trout	Hatchery	Put-Grow-Take	Continue to stock prairie ponds with put and take fisheries. Evaluate angler use and which ponds should be stocked. Look for opportunities to improve habitat where applicable.


Musselshell River Drainage
Fort Peck Lake
Sacagawea River
Arrow Creek
Bear Creek
Blood Creek
Middle Fork Lodgepole Creek
South Fork Lodgepole Creek
Wild Horse Lake
Bear Creek Reservoir
Little Bear Lake
Fords Creek
War Horse Lake
Box Elder Creek
Calf Creek
Belt Creek
Judith River
Lewistown
North Fork Mcdonald Creek
Mcdonald Creek
Winnett
Elk Creek
Petrolia Reservoir
Yellow Water Creek
Yellow Water Reservoir
North Fork Flatwillow Creek
Rattlesnake Creek
Willow Creek
North Willow Creek
Pole Creek
Cameron Creek
Talbot Lake
Musselshell River
Lake Mason
Thom. Lake
Roundup
Currant Creek
Fattig Creek
Hawk Creek
Dry Lake
Ryegate
Deadmans Basin Reservoir
Fish Creek
Big Coulee Creek
Painted Robe Creek
Simmons Creek
North Fork Big Coulee Creek
Big Elk Creek
Lebo Lake
American Fork
Harlowton
Hopley Creek
Roberts Creek
Galloway Creek
Careless Creek
West Fork Hopley Creek
Bair Reservoir
Martinsdale Reservoir
South Fork Musselshell River
Big Lake
0 3.75 7.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

MUSSELSHELL RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Musselshell River headwaters start at approximately 9,200 feet elevation and converge with the Missouri River and Fort Peck Reservoir at 2,200 feet. The Musselshell flows from the confluence of the North and South forks (near the Wheatland and Meager county border) for nearly 340 miles. The North Fork flows nearly 32 miles, and the South Fork flows nearly 31 miles. The drainage area covers approximately 8,000 square miles and includes 7,601 surface acres of lakes or reservoirs within 36 individual waterbodies. Detailed fisheries studies from 1979 through 1986 divided the Musselshell into three zones, coldwater, transitional, and warmwater. The coldwater zone extends from the confluence of the North and South forks of the Musselshell near Martinsdale, to Barber (river mile 336 to 256). The transitional zone begins at Barber and extends to Roundup (river mile 256 to 180). The warmwater zone begins at Roundup and extends to its confluence with the Missouri River (river mile 180 to 0). Additionally, the tributaries in the coldwater zone are almost all dominated with coldwater fish species, while tributaries in the transitional and warmwater zones often start out with coldwater species then transition to warmwater species in the lower reaches.

Coldwater Zone

The coldwater zone of the Musselshell River is influenced by several tributaries in addition to the North and South forks. Major tributaries on the North Fork include Checkerboard and Spring creeks. Major tributaries to the South Fork include Alabaugh and Cottonwood creeks. Cottonwood Creek is a popular trout fishery on USFS lands with a fairly accessible mountain lake (Forest Lake). Tributaries downstream from the forks include Daisy Dean, Little Elk, Haymaker, Big Elk, Hopely, Antelope, Lebo, and American Fork creeks along with several smaller creeks. The average width of the Musselshell River in this zone in 1979 was reported to be 60 feet with a gradient of 20.5 feet per mile. Musselshell River substrates are dominated by gravels and cobble in this zone. This zone contains several irrigation storage reservoirs, which alter the natural hydrograph. Major reservoirs include, Bair Reservoir on the North Fork, Martinsdale, an off-channel reservoir on the South Fork, and Deadmans Basin an off channel reservoir on the mainstem. These three reservoirs store a combined volume of approximately 106,616 acre feet of water at full pool. Eleven irrigation diversions are found in the North Fork, South Fork, and mainstem of the Musselshell River, and are capable of diverting a total of 1,400 cfs. of water. Uncounted stock dams, smaller diversion dams and other obstructions are found in the tributary streams in this zone. The physical alterations to the river from water storage practices and irrigation infrastructure have been both beneficial and detrimental to fish populations in this reach. Some structures prevent upstream passage for fish and others, while passable, remove large quantities of water which severely limit in-channel water downstream of the diversions. Conversely, the storage reservoirs often deliver water back to the river for irrigation demands in the summer, which can help maintain some fisheries in periods of drought. Water quality is sometimes a concern in the Musselshell. Land use is dominated by grazing mixed with hay and crop land, and some riparian areas are severely degraded with loss of willow and cottonwood. Agricultural runoff and irrigation returns can increase salinity, nutrient levels

and sediment load, which increase water temperature and turbidity, and decrease dissolved oxygen. Water chemistry data indicate these influences occur throughout the Musselshell watershed starting in the upper reaches and are compounded downstream.

Transition Zone

The transition zone of the Musselshell is influenced by several tributaries including Fish, Careless, Big Coulee, Painted Robe, Dean, Currant, Goulding, Pole, and Halfbreed creeks. The tributaries in this reach are prone to dewatering and are normally dry or intermittent during irrigation season. The average width of the Musselshell River in this zone in 1979 was reported as 85 feet with a gradient of 6.6 feet per mile. The gradient is about a third of that in the coldwater section. Substrate in this section is characterized by gravels, sand, silt, and isolated sandstone rock slabs along sandstone cliffs.

Storage reservoirs are not found in this zone, although water releases from Deadmans Basin via a canal ultimately returns water into Careless Creek which is part of this zone. At least 10 irrigation diversions are found in this zone (four major diversions have been reported to be capable of diverting a total of 200 cfs), and several additional rock weirs appeared to be in place to raise the river stage for irrigation pumps. A few of the larger diversions were breached or flanked during the 2011 flood, with several still not repaired or replaced in spring of 2012. The physical alterations in this zone may seasonally preclude fish passage, and because the diversions lack screens, many fish are carried onto fields each year or trapped in canals and siphons when they are dewatered each fall. Water quality issues exist in this zone due to irrigation returns that increase salinity (sodium sulfate) and cause nutrient enrichment. Changes in operational releases of water from Deadmans Reservoir through Careless Creek have reduced, but not eliminated, these effects. The dewatering for irrigation purposes in this zone reduces the fishery potential by reducing available habitat.

Warmwater Zone

The warmwater zone of the Musselshell River is influenced by several tributaries: Willow, Flatwillow, Box Elder, Fattig, Hawk, Rattlesnake, Calf, and Lodgepole creeks, in addition to several small intermittent drainages. The average width of this zone in 1979 was reported as 100 feet, with an average gradient of 3 feet per mile, which is half of the transition zone's average gradient. Substrates in this zone are dominated by silt and sand, with some interspersed gravels and bedrock. Five major irrigation diversions have been reported to be capable of diverting a total of 418 cfs. Flatwillow Creek is the largest tributary in the warmwater zone. Petrolia Reservoir, an on-stream irrigation reservoir on Flatwillow Creek that has approximately 9,000 acre feet of storage,severely limits flow immediately downstream in Flatwillow Creek during low-water periods. At least seven dams can be found from Roundup to the Davis/Korenco Dam, three miles downstream of the town of Musselshell. No other major dams or diversions are known on the river from this point to the confluence with the Missouri River. Physical alterations to the river by diversion dams and check dams have fragmented the river during the periods outside of spring high flows. The Delphia Melstone Dam at Musselshell and the Davis/Korenko Dam downstream have been shown to preclude fish passage on a regular basis. Channel catfish and smallmouth bass were documented moving upstream of the Delphia Melstone Dam, but the movements were made during higher than average water events and population surveys have not

found substantial populations of game fish species above this dam. Other upstream dams also have the ability to reduce upstream passage of fish into the transition zone.

FISHERIES MANAGEMENT

Over 42.5 million fish were stocked in the Musselshell watershed by FWP from 1928 to 2009. The most commonly stocked species has been rainbow trout with over 27 million individuals totaling more than 1 million pounds stocked. Many of these have been stocked in major reservoirs in the drainage such as Martinsdale, Bair Reservoir, Deadman's Basin, Lebo, and Yellow Water. Essentially all stocking of trout directly into the river was halted by 1980. Stream stocking accounted for many of the rainbow trout from 1928 through 1982. Most rainbow trout recently found in the river are from reservoir stockings. Westslope cutthroat trout stocked into Bair Reservoir recently were found pioneering the river below the dam.

Coldwater Zone

The coldwater zone and associated tributaries support many species of fish such as brook trout, brown trout, rainbow trout, Yellowstone and westslope cutthroat, mountain whitefish, longnose dace, Rocky Mountain sculpin, longnose, shorthead redhorse, white, and mountain suckers, occasional fathead minnows, flathead chubs, common carp, stonecat, lake chub, northern redbelly dace, and northern redbellyxfinescale dace hybrids. The mainstem supports a good population of brown trout (comprising about 96% of the total trout) and mountain whitefish, while the tributaries support brook trout (about 56% of the total trout), and lesser numbers of rainbow and brown trout, mountain whitefish, and both species of cutthroat trout. Brown trout are also the most common species in much of the North and South forks. Arctic grayling (native to Montana, but not the Musselshell watershed) were stocked in the upper reaches of the South Fork of the Musselshell in two separate ponds in 1961; however, records indicate neither introduction became self -eproducing.

Brown trout population estimates have been completed at the Selkirk Fishing Access Site on an irregular basis since 1984. Current management plans are to conduct population estimates at this site once every 3 years. Many of the estimates attempted in the 2001-2008 time period were not completed, as recapture rates were low and the population consisted of a few larger adults and more abundant, but still relatively few juveniles. The poor population structure during this time was related to poor in-stream flow conditions during a drought. Brown trout population estimates ranged from a low of 17 total fish caught in an electrofishing effort to estimates of 890 brown trout per mile in 1992, which was attributed to a good spawn in 1991. Average density for all years is approximately 300 fish per mile, with about 150 of quality size and the remainder consisting of yearling fish.

Angling pressure in this zone is low. In 2009, the FWP Angler Survey indicated the Musselshell River in the cold zone received 1,750 angler days, with an additional 1,200 angler days in the North and South forks of the river.

Transition Zone

The transition zone supports at least 17 species of fish, but the abundance of sport fish is generally reported as low. Documented species include stonecat, several minnow species (carp, fathead minnow, flathead chub, lake chub, longnose dace, and western silvery minnow), several

sucker species (longnose, mountain, river carpsucker, and shorthead redhorse), smallmouth bass, brown trout and mountain whitefish. Additionally Deadmans Basin Reservoir in this zone contains stocked populations of rainbow trout, kokanee salmon, and tiger muskie. Atlantic salmon and coho salmon have also been stocked into Deadmans Basin, however those species are no longer in the reservoir or river. It is likely some catfish and sauger (at times of high water) are in this zone near Roundup, but they have not been reported in any survey from 1979 to present. Discussions with longtime anglers indicated sauger and catfish were more common in the 1950's and 1960's as far up as Lavina. Brown trout are found in the upper transition zone along with an occasional rainbow trout however in numbers much lower than those in the coldwater zone.

Warmwater game fish densities in this zone may be attributed to irrigation diversions inhibiting movements. The warmer river sections would likely provide good habitat for channel catfish if they could migrate upstream past existing barriers. Sauger would likely be found in this zone each spring, migrating back to the warmwater zone and Missouri River by midsummer if existing dams were passable. Food is not likely limiting, as forage fish populations found in this section of river are strong enough to support higher abundances of predatory fish than are currently found.

Smallmouth bass were stocked from 1977 to 1981 from Lavina to Roundup. This population didn't expand very quickly, and many of these stocked bass were later found downstream of the transition zone in the warmwater zone. Nonetheless, limited recruitment was documented, and the bass that were found in the transition zone were documented as some of the fastest in Montana. Reports by anglers indicate smallmouth bass have been caught as far up as Lavina, but good populations are not found until Roundup. These reports indicate several dams create barriers with water depletions compounding the effects and limiting upstream expansion. In combination with several barriers to upstream movement, warm water temperatures in the fall likely limit populations of smallmouth bass.

Deadmans Basin Reservoir is included in the transition zone because return water enters in the transition zone through the Barber Canal and Careless Creek. Any fish that move out of the reservoir could reach the river, however notable populations of rainbow trout, kokanee salmon, and tiger muskie have not been documented in the transition zone. The reservoir provides habitat for white, shorthead redhorse, and longnose suckers, carp, as well as a limited number of minnow species that enter the reservoir through the Deadmans canal. The Deadmans fishery relies heavily on a stocking program for rainbows, kokanee and tiger muskie. Without stocking, this reservoir would provide a limited fishery for brown trout that come from the coldwater zone via the Deadmans canal system.

In 2009, the FWP Angler Survey estimated that Deadmans Basin Reservoir received 9,702 angler days; 8,885 were from resident anglers. The reservoir ranked statewide as the 82nd most fished water out of over 1,430 different waters reported. The Musselshell River in the transition zone and warmwater zone received 3,647 angler days of use.

Warmwater Zone

Despite severe dewatering problems, high temperatures and poor water quality, the warmwater zone still contains a nearly intact native fish ecosystem. The warmwater zone has been

documented to support at least 31 species of fish. This species list includes catfish (black bullhead, channel catfish, and stonecat), minnows (brassy minnow, carp, emerald shiner, fathead minnow, flathead chub, longnose dace, plains minnow, sand shiner, spottail shiner, and western silvery minnow), suckers (longnose sucker, blue sucker, mountain sucker, river carpsucker, shorthead redhorse, smallmouth buffalo, bigmouth buffalo and white sucker), walleye, sauger, black crappie, bluegill, green sunfish, smallmouth bass, burbot, freshwater drum, goldeye, and northern pike. Many of these species are not found at Roundup, but most are found below the Delphia-Melstone Diversion Dam at the town of Musselshell. Unverified reports of paddlefish being found in a field near Melstone were made as the flood waters of 2011 receded. FWP reported angling pressure of 2,360 angler days for the lower 80 miles of river in 1963. In 2009, the pressure was estimated to be 3,647 angler days.

HABITAT

Habitat issues requiring attention are habitat fragmentation from irrigation structures, meander cutoffs from railroad and road projects, and near dewatering of the Musselshell River. Channel instability due to a railway bed and highway projects cutting off meander bends has caused loss of habitat for fish. The flood of 2011 changed many sections of river by creating cutoffs and, in some cases, breaching the abandoned railroad berm, re-establishing some bends as well as flanking and bypassing several irrigation structures which reopened fish passage. Recent down-cutting of the channel has reduced channel length in the Musselshell River by about 8% for its full length and about 21% below Flatwillow Creek. Channel widening associated with the 2011 flood will strongly influence fish habitat. Dozens of miles of abandoned channel may also play an important role in the prairie stream and riparian ecosystem.

Over the past decade, the water judge, the Musselshell Distribution Project, and efforts of the Musselshell Water Coalition, have resulted in more water being conveyed in the main channel compared to the transition and warmwater zones. Additional water rights for instream flow would further improve conditions.

Coldwater Zone

Wetted perimeter analysis above Harlowton determined that 80 cfs is necessary to sustain a consistently high-quality wild brown trout fishery in the coldwater section. Bankfull flow near Martinsdale was approximated to be 1,060 cfs at a two-year recurrence interval, which typically occurs in June. The 1.25 year recurrence flow was reported as 514 cfs. These studies recommended a flow of 1,060 cfs be allowed to occur for at least 24 hours in June, with the remainder of June at 514 cfs to maintain channel habitat for trout production. As a minimum, observations at flows of 42.8 cfs indicated many riffles were exposed, and fish habitat along the banks was dewatered, leaving fish in cover-limited pools.

Transition Zone

Wetted perimeter analysis in a reach just downstream of the city of Roundup determined that a flow of 80 cfs is needed for fishery maintenance. In the 1980's, TFWP found some gravel bars were exposed at 76.7 cfs but determined that this flow still provided moderate fish habitat. The 2 year and 1.25 year recurrence flows were not reported for this zone. These values are important

to determine because they represent flows that typically maintain habitat and transport and redistribute silts and other sediments.

Warmwater Zone

Wetted perimeter analysis at the Mosby Bridge resulted in a recommendation of 70 cfs to be met year round for fishery maintenance. In the 1970's, bankful discharge for 2-year flood was estimated at 4,080 cfs, and 1.25-year flood was estimated at 1,860 cfs. It was recommended that these flows be provided annually during runoff, with 4,080 cfs for 24 hours and 1,860 cfs for several weeks after the high flow to help maintain fish habitat.

Studies determined that the Davis/Korenco Dam and Delphia-Melstone Dam create barriers for fish most of the time, but catfish and bass were able to bypass these structures during some high water events. Sauger and walleye were not documented passing these diversion dams. Because of tremendous overbank flooding in 2011, it is probable sauger, walleye and other species, if present, were able to bypass these dams. One burbot and a freshwater drum were caught below the Davis Dam in 1981 by FWP and a second burbot was reported by an angler as far up as Shawmut. These fish likely migrated from the Missouri River during spring flows. Good fishing can occur in the warmwater zone, but it is impaired due to erratic discharges and dams. If the Davis and Delphia-Melstone dams became passable to fish, it is likely other upstream dams would become the limiting factors to upstream fish movements during most flows. However, those upper dams represent less of a fish passage challenge than the lower two dams. FWP studies have also determined that the channel catfish in the warmwater zone often migrate between the Musselshell and the Middle Missouri Rivers.

FISHING ACCESS

The four FASs in this watershed are: Martinsdale Reservoir, Selkirk, Harlowton, and Deadmans Basin Reservoir, all in the Coldwater Zone. Other limited access can be found on Forest Service, BLM, state, county and city lands, and with permission by private landowners. Additional public access is needed throughout the basin, particularly in the warmwater zone. Recreation infrastructure on Bair Reservoir is in extremely poor condition.

SPECIAL MANAGEMENT ISSUES

The flood of 2011 created extensive opportunity in much of this management area to improve the river for fish and wildlife use. Water managers have improved instream flow conditions over the past decade with the Musselshell River Distribution Project. It is important that FWP continue to support this project. This area provides a great potential for developing and improving native sauger and channel catfish populations, and already supports a very good assemblage of native minnows and suckers that would benefit from additional habitat enhancement.

FISHERIES MANAGEMENT DIRECTION FOR MUSSELSHELL RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
North Fork Musselshell - Headwaters to Bair Reservoir	11 miles	Brook trout	Wild	General	Manage as a recreational fishery at historic levels
Habitat needs and activities: Maintain flows of 3 cfs for habitat.					
Bair Reservoir	221 acres	Rainbow trout, Westslope cutthroat trout Brook trout	Hatchery Wild	Put-Grow-Take General	Continue stocking at current rates Manage as a recreational fishery with consumptive harvest.
North Fork Musselshell – Bair Reservoir to South Fork	16.5 miles	Brook trout Brown trout Westslope cutthroat trout	Wild Wild Wild	General General General	Manage as a recreational fishery at historic levels Evaluate population and potential for reproduction and harvest. Hatchery fish from Bair Reservoir
Habitat needs and activities: Maintain flows of 16 cfs for habitat.					
Checkerboard Creek	6.5 miles	Brook trout, Brown trout, Rainbow trout	Wild	General	Manage all as a recreational fishery at historic levels
Habitat needs and activities: Maintain flows of 6 cfs for habitat.					
Spring Creek	12 miles	Brook trout	Wild	General	Manage as a recreational fishery at historic levels
Habitat needs and activities: Maintain flows of 8 cfs for habitat.					
South Fork Musselshell River	30 miles	Brook trout, Brown trout, Rainbow trout	Wild	General	Manage all as a recreational fishery at historic levels
Habitat needs and activities: Maintain flows of 30 cfs for habitat.					
Alabaugh Creek	9 miles	Brook trout,	Wild	General	Manage all as a recreational fishery at historic

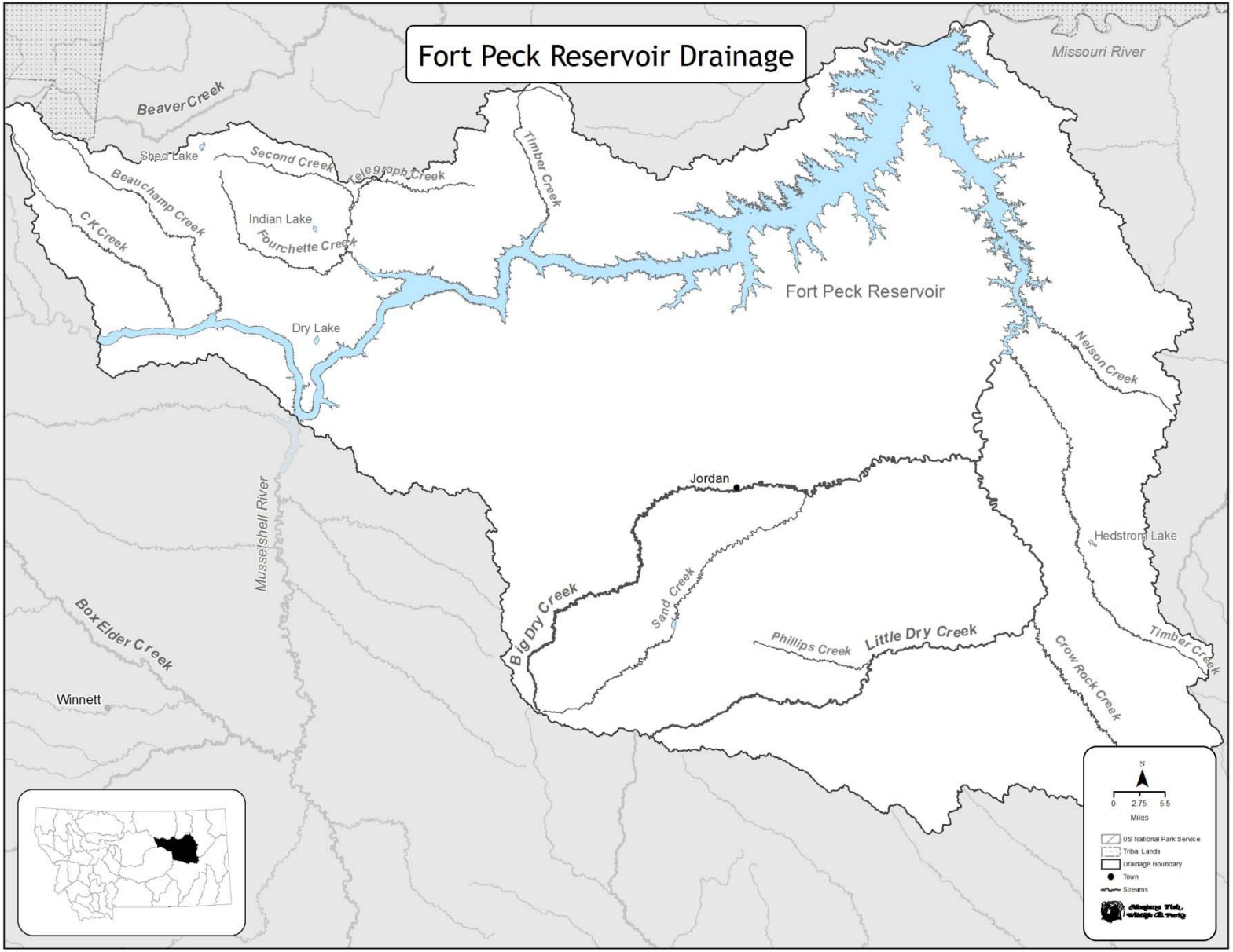
Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Brown trout, Rainbow trout			levels
Habitat needs and activities: Maintain flows of 12 cfs for habitat.					
Cottonwood Creek	10.8 miles	Brook trout, Brown trout, Rainbow trout, Westslope cutthroat trout hybrids	Wild	Liberal Regulations	Manage as a recreational fishery at historic levels
Habitat needs and activities: Maintain flows of 16 cfs for habitat.					
Martinsdale Reservoir	947 acres	Rainbow trout, Westslope cutthroat trout Brown trout	Hatchery Wild	Put-Grow-Take General	Continue stocking at current rates Manage all as a recreational fishery with consumptive harvest.
Habitat needs and activities: Maintain connectivity work through programs to improve riparian area and stream habitat. Continue to support Musselshell River Distribution Project. Maintain flows of 80 cfs for habitat.					
Musselshell River Coldwater Zone (Confluence of North and South Forks to Barber)	53 miles	Brook trout, Rainbow trout, Brown trout, Mountain whitefish (N)	Wild	General	Maintain and enhance populations
American Fork	34 miles	Brook trout, brown trout	Wild	General	Manage as a recreational fishery at historic levels.
Lebo Creek	32 miles	Native minnows (N)	Wild	Conservation	
Lebo Lake	309 acres	Tiger muskie, Rainbow trout, Brown trout	Hatchery	Put-Grow-Take	Not currently managed. Former Private Pond/Public Fishing pond. Would like to re-establish access and manage for species indicated.
Big Elk Creek	25 miles	Brook trout, Brown trout	Wild	General	Manage as a recreational fishery at historic levels.
Daisy Dean Creek	28 miles	Brook trout	Wild	General	Manage as a recreational fishery at historic levels.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Work with USFS for solutions to reduce/prevent impacts on riparian area from ATV traffic on Daisy Dean.					
Chief Joseph Pond	2 acres	Rainbow trout	Hatchery	Put-Take/ Family Fishing water	Continue stocking at current rates
Forest Lake	21 acres	Cutthroat Hybrids	Wild	General	Evaluate periodically. Manage as a recreational fishery at historic levels
Haymaker/ East Fork Haymaker	30 miles	Yellowstone & Westslope cutthroat trout	Wild	General	Manage as a recreational fishery at historic levels
Deadmans Reservoir	2,120 acres	Tiger muskie	Hatchery	Put-Grow-Take/Quality	Continue stocking at current rates, limit harvest to 1 over 40". Used to reduce sucker population in reservoir to improve trout and salmon growth.
		Rainbow trout, Kokanee salmon	Hatchery	Put-Grow-Take	Stock at current rates
Musselshell River Transition Zone (Barber to Roundup)	138 miles	Smallmouth bass	Wild	General	Evaluate 1970/1980's stocking to maintain fishery
		Channel catfish (N)	Wild	Conservation	Reintroduce/enhance population and expand to Deadmans Diversion. Consider potential for fish transfers and stocking to accomplish.
		Sauger (N)	Wild	Conservation	Consider expanding population to Deadmans Diversion. Consider potential for fish transfers And stocking to accomplish.
		Native minnow assemblage (N)	Wild	General	Improve or maintain habitat and water conditions
Habitat needs and activities: Improve habitat to support ecosystem function and production of trout, whitefish, and native minnow and sucker populations. Maintain flows of 80 cfs for habitat in the Musselshell River					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Fish Creek	86 miles	Brook trout, Native minnow assemblage	Wild Wild	General Conservation	Manage as a recreational fishery at historic levels. Improve or maintain habitat and water conditions
Careless Creek and Little Careless Creek	68 miles	Native minnow and sucker populations (N)	Wild	Conservation	Improve and maintain fish passage this tributary has one of the best native minnow populations in the area.
Big Coulee	51 miles	Native minnow-sucker species (N)	Wild	Conservation	Improve or maintain habitat and water conditions
Painted Robe Creek	38 miles	Native minnow-sucker species (N)	Wild	Conservation	Improve or maintain habitat and water conditions
Swimming Woman Creek	33 miles	Brook trout Native minnow-sucker species (N)	Wild Wild	General Conservation	Manage as a recreational fishery at historic levels. Improve or maintain habitat and water conditions
Currant Creek	60 miles	Native minnow-sucker species (N)	Wild	Conservation	Improve or maintain habitat and water conditions
Musselshell River Warm water Zone (Roundup to Confluence with Missouri River)	151 miles	Smallmouth bass Channel catfish (N) Sauger (N) Native minnow assemblage (N)	Wild Wild Wild Wild	General Conservation Conservation Conservation	Manage as a recreational fishery at historic levels. Manage as a recreational fishery at historic levels. Limited population consider stocking and wild fish transfers from other waters Improve or maintain habitat and water conditions

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Drum (N)	Wild	Conservation	Maintain viable population
		Rainbow trout	Hatchery	Put-Grow-Take	Continue stocking reservoirs annually
		Burbot (N)	Wild	Conservation	Evaluate population, improve fishery
		Walleye	Wild	General	Evaluate population movements and influence on other fish consider increasing harvest
Habitat needs and activities: Continue to manage connectivity to favor native fish. Maintain instream flow of 70 cfs on the Musselshell downstream of the Musselshell Diversion dam for habitat. Establish additional gage stations.					
Willow Creek	71 miles	Brook trout	Wild	General	Maintain viable population
		Native minnow-sucker species (N)	Wild	Conservation	Improve or maintain habitat and water conditions
Flatwillow Creek	118 miles	Brook trout, Brown trout,	Wild	General	Manage all as a recreational fishery at historic levels
		Native minnow-sucker species (N)	Wild	Conservation	Improve or maintain habitat and water conditions
Habitat needs and activities: Maintain flows of 15 cfs for habitat. Additional access is needed upstream of highway 87.					
South Fork Flatwillow Creek	23 miles	Brook trout	Wild	General	Manage all as a recreational fishery at historic levels
North Fork Flatwillow Creek	25 miles	Brook trout	Wild	General	Manage as a recreational fishery at historic levels
Tributaries to Flatwillow and Box Elder Collar Gulch and Halfmoon Creek	5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Enhance and protect populations. Continue to work on project to expand westslope cutthroat trout in the Judith Mountains.
Habitat needs and activities: Maintain flows of 0.6 cfs for habitat in Collar Gulch Creek.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Petrolia Reservoir	518 acres	Walleye, Rainbow trout Northern pike, Yellow perch	Hatchery Wild	Put-Grow-Take General	Manage as a recreational fishery with consumptive harvest Manage as a recreational fishery at historic levels.
Jakes Reservoir	18 acres	Sauger (N) Yellow perch	Wild Wild	General General	Evaluate options for additional stocking of sauger such as via wild fish transfer. Manage as a recreational fishery with consumptive harvest
Numerous BLM Ponds		Largemouth bass, Crappie, Rainbow trout	Hatchery	Put-Grow-Take	Maintain stocking at current rates Manage recreational fisheries with consumptive harvest
Habitat needs and activities: Coordinate with BLM for water level management, dam repair and habitat concerns.					
Numerous Private Ponds allowing Public Fishing		Largemouth bass, Rainbow trout	Hatchery	Put-Grow-Take/ Family Fishing waters	Maintain stocking at current rates


Fort Peck Reservoir Drainage
Missouri River
Beaver Creek
Shed Lake
Second Creek
Telegraph Creek
Timber Creek
Beauchamp Creek
C K Creek
Indian Lake
Fourchette Creek
Fort Peck Reservoir
Dry Lake
Nelson Creek
Jordan
Musselshell River
Hedstrom Lake
Big Dry Creek
Sand Creek
Phillips Creek
Little Dry Creek
Timber Creek
Crow Rock Creek
Box Elder Creek
Winnett
N
0 2.75 5.5
Miles
US National Park Service
Tribal Lands
Drainage Boundary
Town
Streams

FORT PECK RESERVOIR DRAINAGE

PHYSICAL DESCRIPTION

Fort Peck Reservoir is formed by a large earth-filled dam located on the Missouri River in the northeastern part of Montana. Completed in 1937, it is the largest body of water in the state, with 246,000 surface acres and 1,520 miles of shoreline at full pool. The reservoir is 134 miles in length and has a maximum depth of 220 feet when full. Major tributaries to Fort Peck Reservoir include the Missouri River, the Musselshell River, and Big Dry Creek. The Musselshell and Missouri rivers are discussed in their own drainage plans. The habitat at the mouths of these streams is closely tied to Fort Peck Reservoir levels; several stream miles are inundated at normal to high pool levels. This watershed encompasses a drainage basin of 57,500 square mile basin and is located within Phillips, Valley, Fergus, Petroleum, Garfield, and McCone counties. Administration of all land and water within the executive boundary of the Charles M. Russell (CMR) National Wildlife Refuge is shared by the U.S. Fish & Wildlife Service and the U.S. Army Corps of Engineers (USACE) in accordance with a Memorandum of Agreement. The reservoir is operated by the Corp of Engineers to provide water for power, flood control, irrigation, navigation and recreation.

FISHERIES MANAGEMENT

The fishery in Fort Peck Reservoir is diverse with 47 different fish species, most of which are native to the Missouri River. Sixteen species, mostly game fish, have been introduced by FWP to develop sport-fishing opportunities. Walleyes and northern pike were both introduced in 1951 followed by lake trout in the mid 1950's. Smallmouth bass were introduced in 1981 and chinook salmon in 1983. During the 1980's spottail shiners and cisco were also introduced to supplement the existing forage base. Additionally, native game fish including burbot, channel catfish, paddlefish, and sauger are sought by anglers throughout the reservoir. Because of the diversity and world class fishery that Fort Peck Reservoir has to offer, it is ranked number one in the region in number of angler days, and within the top ten on a statewide level.

The quality multi-species fishery found in the reservoir is the result of ongoing management efforts by FWP. Key to this effort is an understanding of the variable nature of fish populations. Specifically, natural reproduction is largely influenced by reservoir water levels and environmental conditions at time of spawn. As a result, extensive stocking programs for walleye and chinook salmon are in place to reduce population variability. These introductions were carefully analyzed to determine the long-term benefits to the fishery. Evaluation of management success is done through standardized monitoring combined with angler surveys. This basic monitoring program allows estimates of catch rates, size of fish, and overall angler satisfaction .

HABITAT

Fort Peck Reservoir, much like other storage reservoirs, typically has annual varial zones where annual water level fluctuations produce a suite of impacts to the aquatic environment and associated terrestrial environment. This unstable zone is subject to loss of aquatic and terrestrial plants and associated populations of phytoplankton and benthic organisms. Lack of submerged vegetation causes a decline in the overall productivity of the entire fish population by reducing

food supply, spawning habitat, and rearing cover. Submerged vegetation also provides protective cover for forage fish and young game fish species. Additionally, varial zones may provide areas for successful colonization of aquatic invasive species such as Eurasian Watermilfoil, a submerged aquatic weed discovered in 2010, because there is no healthy native aquatic plant community to provide competition.

During the late l950's and early 1960's rising water levels on Fort Peck Reservoir inundated vegetation and produced an outstanding fishery for northern pike, crappie, and yellow perch. In addition, walleye abundance improved after increases in reservoir elevation and high flows in the Big Dry Arm during the late 1970's. Higher reservoir elevations and increased flows allowed adult walleye to access suitable spawning substrate in the Big Dry Arm. Water level management to promote successful walleye spawning was not possible. . As a result, this high quality fishery was maintained with stocking. Recommendations from FWP to enhance and maintain the Fort Peck fishery are submitted annually to the USACE for inclusion into the Annual Operating Plan process. Montana requests are coordinated with other Missouri River states through the Missouri River Natural Resource Committee.

Attempts by local sportsman groups to improve spawning habitat to enhance the fishery have been undertaken in the form of spawning fences and Christmas tree reefs. However, due to the vastness of the reservoir, no measurable benefits to the fishery have been noted. Cobble or rock spawning reefs have been considered to aid natural reproduction of walleye, but cost is prohibitive and long-term effectiveness is uncertain due to siltation and water level fluctuations.

FISHING ACCESS

Fort Peck Reservoir is surrounded by public access within the CMR National Wildlife Refuge. However, due to the size of the reservoir and poor condition of roads/trails, access opportunities are somewhat limited. A total of 13 public access sites (12 boat ramps) are located around the reservoir, which are administered by USACE. These recreation sites are managed privately or by federal government natural resource agencies. Specific recreation sites managed by FWP include Duck Creek FAS near Fort Peck, Rock Creek FAS on the Big Dry Arm of the reservoir, and Hell Creek Recreation Area north of Jordan, which is managed by the FWP Parks Division. Various projects have been implemented over the years to improve access to Fort Peck Reservoir through the joint efforts of five counties, federal agencies, and FWP. Various local, state and federal funds were used to accomplish this work. The projects included work on access roads and boat ramp facilities at the Duck Creek FAS, Pines recreation area, Hell Creek, Crooked Creek, Flat Lake/Spillway, and Nelson Creek Recreation areas. Efforts by six surrounding counties, US Fish and Wildlife Service, USACE, BLM, and FWP resulted in additional improvements on access routes to Hell Creek, Crooked Creek, McGuire Creek, the Pines, and Fourchette Bay.

SPECIAL MANAGEMENT ISSUES

The 2012-2022 Fort Peck Reservoir Fisheries Management Plan was completed in December of 2011. The Plan reflects the public's desire for a high quality, cost effective, multi-species fishery in Fort Peck Reservoir. Additionally, this plan represents the on-going evolution of fisheries management on Fort Peck Reservoir. Of principal importance is to efficiently develop scientifically sound sampling methods that quantify the essential metrics needed to gain additional insight into the Fort Peck Reservoir fishery. The following is a synopsis of the plan.

Walleye Stocking

FWP will aim to stock a minimum of 3.0 million walleye fingerlings annually in Fort Peck Reservoir. Fingerling stocking will be augmented with fry as conditions and availability allow.

Walleye fingerling production at the hatcheries will depend on quality and quantity of eggs collected, egg hatching success and pond production. If fingerling production exceeds 3 million, biological and environmental conditions (listed below) will be reviewed to determine if stocking additional walleyes is justified. Stocking rates may be reduced if biological and environmental conditions are unfavorable to maintaining a high quality walleye fishery. Continue to evaluate walleye fingerling and fry survival and recruitment. Walleye stocking rates will be guided by reservoir water levels, physical condition of the existing walleye population, and forage fish abundance. The goal of this plan is to maximize hatchery production of walleye to ensure that biologically based stocking rates are met.

Walleye Catch Rates

FWP will work to achieve angler catch rates of 0.4 walleye per hour during periods of the summer creel on Fort Peck Reservoir. The highest documented angler catch rate for walleye on Fort Peck Reservoir occurred in 2008, with 0.28 fish per hour. The goal of 0.4 fish per hour will likely not occur throughout the reservoir but seasonally in regions of the reservoir. For example, walleye catch rates of 0.5 fish per hour were observed in July during the 2008 Fort Peck creel survey. Walleye fisheries in surrounding states and provinces throughout the Midwest, which have limited natural reproduction, like Fort Peck, consistently have lower catch rates. Walleye catch rates exceeding 0.3 fish per hour are generally considered excellent. The goal of this plan is to maximize walleye angler catch rates while ensuring a sustainable walleye fishery.

Tournaments

Angling tournaments continue to grow in popularity on Fort Peck Reservoir. In 2001, the first year of the previous Fort Peck fisheries management plan, three walleye tournaments and one smallmouth bass tournament were permitted. In 2011, 13 tournaments were proposed consisting of eight walleye, three smallmouth bass, one northern pike, and one salmon/lake trout tournament. The increase in proposed tournaments in 2011 on Fort Peck Reservoir led to the denial of one tournament entry because management plan stipulations under the old plan stated that no more than 12 open water tournaments will be held per year. The management plan further stated that preference will be given to applicants who held previous tournaments on Fort Peck Reservoir. This structure has led to inequality for non-established tournaments because established tournaments occupy the 12 available slots.

Because of the increasing number of tournaments and scheduling conflicts with holiday weekends on Fort Peck Reservoir, the 2011 open water season had a tournament scheduled every weekend during the months of June and July minus the holiday weekends. Non-tournament anglers have expressed frustration with the lack of tournament-free weekends during peak summer months and state that impacts associated with tournament pre-fishing needs to be addressed. The goal of the current plan is to reduce conflict between non-tournament anglers while ensuring the tradition of tournament fishing continues. The following list of criteria will be used to meet this goal.

Fort Peck Reservoir Management Plan Tournament Guidelines

1. A maximum of 16 tournaments will be permitted per calendar year.
    a. No more than 12 open water and 4 ice tournament will be permitted per calendar year.
    b. No more than 6 tournaments will be permitted from June 1st through July 30th.
    c. No tournaments will be permitted for the weekends of Memorial Day, Father's Day, Fourth of July, or Labor Day.
    d. Only one tournament per weekend will be permitted.
    e. Established Fort Peck tournaments of 10 consecutive years or more will be given preference.
    f. Applicants will be required to list first, second and third choice tournament dates on applications.
    g. In years where more applications are received than available tournament dates, applications will be entered in a lottery.
    h. Unsuccessful applicants will receive one bonus point. Tournament applications will be entered into the lottery in subsequent years and bonus points will be applied (e.g. if an applicant has accumulated one bonus point, that application will be entered into the lottery two times).
2. Tournaments will be reviewed on an individual basis. Evaluation of proposed tournaments will include potential biological and social impacts. Proposed tournaments will undergo a 30-day public review and comment period.
3. All catch and release tournaments with weigh-in type format will be limited to cool weather periods: May-June 15, or after September 15.
4. Tournament boundaries must be clearly defined in the application. Proposed boundary size should be minimized in an effort to reduce tournament related fish mortality caused by fish being held in live-wells for extended periods of time and/or traveling long distances.

Tournament directors will be required to report post-tournament catch-rate information in a standardized format.

FISHERIES MANAGEMENT DIRECTION FOR FORT PECK RESERVOIR DISTRICT

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Fort Peck Reservoir (Headwaters Downstream to Fort Peck Dam)	246,000 acres	Walleye	Hatchery/ Wild	General	Continue to place the primary management emphasis on walleye. Adhere to stocking guidelines of the Fort Peck Reservoir Fisheries Management Plan.
		Northern pike, Smallmouth bass	Wild	General	Continue to monitor populations. Rely on variable natural reproduction and survival to determine population levels.
		Lake trout	Wild	General	Rely on variable natural reproduction and survival to determine population abundance. Evaluate stocking lake trout if conditions warrant. Monitor populations through annual surveys.
		Chinook salmon	Hatchery	Put-Grow-Take	Adhere to stocking guidelines of the Fort Peck Reservoir Fisheries Management Plan. Monitor populations through annual surveys.
		Burbot (N), Channel catfish (N) ,	Wild	General	Continue to monitor populations. Better understand factors for limited recruitment.
		Sauger (N)	Wild	Restrictive Regulations	Continue to monitor populations. Better understand factors for limited recruitment.
Sentinel Reservoir	14 acres	Rainbow trout	Hatchery	Put-Grow-Take	Manage for put grow and take rainbow trout fishery.
Habitat needs and activities: Look for opportunities to increase riparian habitat and aesthetic values.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Big Dry Creek Little Dry Creek	149 miles 69 miles	Channel catfish (N) Multi-species	Wild Wild	General General/Conservation	Continue to monitor populations. Manage for recreational fishing opportunity where applicable. Monitor non-game fish species for native fish assemblage and overall ecosystem health
Trout Ponds North of Reservoir-Located Throughout Blaine, Phillips, and Valley Counties	Numerous	Rainbow trout, Brook trout	Hatchery	Put-Grow-Take	Monitor water conditions and impacts from winterkill. Stock trout based on current 6-year stocking plan.
Habitat needs and activities: Work with Bureau of Land Management and landowners to increase riparian habitats and aesthetic landscapes surrounding the ponds. Maintain windmill aeration systems on ponds with marginal depths.					
Warmwater Reservoirs and Ponds North of Reservoir-Located Throughout Blaine, Phillips, and Valley Counties	Numerous	Largemouth bass, Northern pike, Walleye, Smallmouth bass, Channel catfish (N), Black crappie, Yellow perch, Bluegill	Wild/ Hatchery	General/ Put-Grow-Take	Manage as self-sustaining fisheries. Supplement populations with hatchery stocking and wild fish transfers as needed. Monitor water conditions and impacts from winterkill.
Habitat needs and activities: Work with Bureau of Land Management and landowners to increase riparian habitats and aesthetic landscapes surrounding the ponds. Maintain windmill aeration systems on ponds with marginal depths.					
Private Ponds/Reservoirs South of Reservoir in FWP Region 7 Pond	Numerous	Trout Bass,	Hatchery Wild/	Put-Take General/	Public relations opportunity with landowners to provide local fishing opportunity for rural community. Maintain fishery through regulations and annual stocking Public relations opportunity with landowners

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Program		Walleye, Northern pike	Hatchery	Put-Grow-Take	to provide local fishing opportunity for rural community. Maintain fishery through regulations and stocking when necessary
		Crappie, Yellow perch, Bluegill	Wild/ Transfer	General	Public relations opportunity with landowners to provide local fishing opportunity for rural community. Provide panfish angling opportunity, supplement population through wild fish transfers when necessary.